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A REPORT ON THE OILSEED GROWERS COOPERATIVE PROJECT

By

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I. INTRODUCTION

A. The Project

Hardly more than a decade ago India was largely self-sufficient in the production of edible oils. Today the country suffers growing deficits which must be alleviated through vegetable oil imports that currently surpass one million tons per year. The resultant loss in foreign exchange constitutes a major threat to the Indian economy. But meanwhile, domestic prices of edible oils are now over double the world market price levels for these commodities, and are rising rapidly. This price trend has potentially disastrous implications for Indian consumers in general, because vegetable oils represent -after foodgrains--the most important source of calories in the national diet. Edible oil prices are not only rising but have also begun to fluctuate wildly, both as a result of government market interventions to regulate supplies as well as some speculative behavior by traders and households. These fluctuations are out of all proportion to seasonable variations in oilseed supply. And finally, much to the detriment of oilseed growers, commodity prices are generally too low to encourage expanding production through yield-enhancing investments or growing acreage in oilseed crops. Taken together, the above-mentioned problems are too complex to be solved by half-way, ad hoc measures; their solution requires a major restructuring of the oilseeds and vegetable oils industry in India.

It was precisely that conclusion which led to the organization of the Oilseed Growers Cooperative Project (OGCP). The undertaking is financed by (rupee) currency generations resulting from the commercial sale in India of 160,000 tons of donated U.S. soybean oil. The dollar value of these commodities is presently estimated at US$160 million. As such, the project represents the largest commitment of agricultural commodities in the history of America's Food for Peace (PL 480--Title II) Program.

Fundamentally, the OGCP seeks to integrate a major share of the production, processing, and marketing sectors of India's oilseeds and vegetable oil industry--all within a cooperative system owned by the growers themselves. The project would benefit growers by providing a permanent and stable market for their oilseeds (i.e., processing plants), by paying them higher commodity prices and quality premiums, and by facilitating to them the supplies of yield-increasing cash inputs which they need to achieve breakthroughs in oilseed yields. Growers would also receive, through end-of-year patronage refunds, an important share of the profits generated from processing and marketing activities. The project would finance the acquisition of new or existing processing facilities for oilseeds. With assured supplies of raw material, such plants would become more efficient by operating year-round. This, in turn, would allow the project to shrink currently inflated processing costs for edible oils and thereby sell these products at prices more favorable to Indian consumers. To further dampen the

retail prices of edible oils the project would engage in commercial procurements of both domestic and imported vegetable oils for market intervention activities. Using supplies of both commercially procured oil as well as the gifted soybean oil under the PL 480 Program, the project would develop a comprehensive marketing system for OGCP commodities. In particular, it would establish consumer acceptance and demand for soybean oil in anticipation of future imports of this product combined with domestically-produced soybean oil supplies originating in processing plants financed by the project.

The Oilseed Growers Cooperative Project has a scheduled duration of seven years (1979-1986). It is expected to achieve a coverage of some 350,000 oilseed growers organized in as many as 8,000 village-level cooperative societies located in the six states which represent India's principal oilseed production regions.

Despite its size and coverage, the OGCP is <u>not</u> a bilateral assistance program between the U.S. and Indian governments. Rather, it involves an assistance relationship between two private sector institutions, namely: the Cooperative League of the U.S.A. (CLUSA)--which is responsible for procurement and shipment of the gifted oil and monitoring how commodity proceeds are used in India--and the National Dairy Development Board (NDDB), an Indian non-profit institution with 15 years experience in the promotion of integrated (industrial) undertakings that benefit the rural poor. The NDDB acts initially as the overall project authority to get the OGCP operations off the ground and to make

sure they are technically and financially sound. However, project implementation responsibilities are then to be gradually transfered to the trained staff of state-level federations of oilseed growers cooperatives. Each of the state federations will eventually be included in a national federation. Thus NDDB's primary function in the project is that of organizing and supervising the development of the institutional infrastructure needed to implement the OGCP's integrated grower-to-consumer cooperative system.

B. Purpose and Scope of the Present Assessment Report

This report is the result of project assessments contributed by a team of six professionals. Their perspectives represent the diverse backgrounds of cooperative management, oilseed processing, edible oil marketing and trading, agricultural production, agronomic research, and rural economic development. Two team members were contributed by USAID/India, one by AID/Washington, and three by CLUSA. Nonetheless, all team members have attempted to relegate to secondary importance the interests of the institutions they represent. Instead, first and foremost, they have tried to identify what they believe to be in the best interest of the Oilseed Growers Cooperative Project, and particularly to promote the interests of the Indian small farmers and consumers which the project seeks to benefit.

The overall purpose of the assessment was to review current project activities and those planned for the future to ascertain whether the project's design and implementation arrangements are adequate to

insure satisfactory progress toward the achievement of OGCP objectives and performance goals. It would be a misnomer to refer to the Assessment Team's efforts as an "evaluation", because that is a joint NDDB-CLUSA-USAID-GOI responsibility to be conducted upon completion of the project's First Stage, which is scheduled to end in June 1982. Instead, the Team's assignment was to conduct a "project assessment" that would be focussed on the present and the future. More precisely, the Team was asked to undertake the following tasks: (1) to review each major element of the project budget (particularly the newly-proposed components) to ascertain whether estimated costs are realistic, and to what extent these components are necessary and appropriate actions to achieve project objectives; (2) to assess the technical and financial viability of the initial two processing plants acquired by the project in Gujarat State; (3) to review NDDB proposals for market intervention activities ("buffer-stocking"); (4) to examine the marketing operations of project entities (e.g., state federations) to ascertain whether they are adequate or functioning effectively; (5) to review project arrangements for training of farmers, management personnel, federation staff, etc.; (6) to assess the question of project reflows and recommend a procedure to account for them; (7) to review the Operations Research Study (prepared by CLUSA short-term consultants) to determine the extent to which its findings have been incorporated into project planning or implementation; and (8) to examine the rationale and schedule for presently committed supplies of donated soybean oil which have not yet been shipped.

Apart from the above tasks, the Assessment Team decided it was necessary--for the good of the project--to address two additional areas. The first consisted of a review of the project's "production enhancement" activities. This component embraces the organization of village-level societies, mobile team promotion and extension work, cash input and credit supply to growers, farmer-demonstration plots, seed multiplication, district farms, and linkages to regional or national agronomic research programs. The second added topic for assessment by the Team concerned the project's institutional relationships and communications--particularly between CLUSA and USAID/India.

C. Assessment Activities

The Team's three external (non-resident) participants reached India between March 4-10. The following week was mostly devoted to background reading of project documents, and also to meetings with CLUSA and USAID personnel in Delhi. The Team then spent the third week (March 16-21) on a field trip to Gujarat, the state where project implementation was first begun and has advanced the furthest. To cover more ground in greater detail, the Team split up into three smaller units specializing in processing, marketing, and production enhancement respectively.

All three sub-teams were accompanied by members of the NDDB staff and state federation personnel during their field visits in Gujarat. Activities included a tour of the Bhavnagar Vegetable Products plant and extensive interviews with its management staff; a visit to the offices of the Gujarat Cooperative Oilseed Growers Federation (GCOGF); a

visit to Bhavnagar port, one of the project's principal transshipment points for donated soybean oil; visits to Fair Price Shops and other retail distribution outlets utilized by the project; visits to village-level cooperative societies in the Surashtra Region (southern Gujarat) and to a variety of farmer demonstration plots; visits to the Talaja district farm and several smaller experimental and seed multiplication properties operated by agricultural high schools; and attendance at a demonstration of how the project procures groundnuts from grower-members at the village level. The sub-team that evaluated processing spent two days at the Bhavnagar plant and one day at the smaller facility at Jamnagar, which was not yet operating.

After three days in southern Gujarat the Assessment Team traveled northeast to Anand, location of NDDB headquarters, where we spent the remainder of the week. At Anand we had the opportunity to familiarize ourselves with the activities and achievements of "Operation Flood", the highly successful dairy development scheme promoted by NDDB since 1965 (also using donated commodities) and which has served as the basic model for the Oilseed Growers Cooperative Project. However, most of the time at Anand was spent in lengthy discussions with staff of NDDB's Oilseed and Vegetable Oil Wing (OVOW). Also present at these meetings was the CLUSA/India Representative and the CLUSA/OGCP Project Monitor.

Upon returning to Delhi the Assessment Team met March 24-25 to discuss the findings and conclusions of all participants. At this time writing responsibilities for different sections (or sub-sections) of

the report were assigned. For each assignment the Team agreed to a tentative outline of the content to be covered. Write-ups were completed in draft March 25-26. The Team met again on March 27 to read and comment on the written contributions of its different members. An edited second draft was distributed to staff of USAID, CLUSA, and NDDB/OVOW on March 29; all parties participated in a joint discussion of the report the following day. Corrections and modifications suggested by all participants were incorporated into the final draft, which was prepared by the Team Leader in New York during the second week of April 1981.

The Assessment Team addressed a very ambitious scope of work within a very short period of time. The Oilseed Growers Cooperative Project is much too large and complex to be adequately assessed with only one week in the field. Moreover, since the project has become so dynamic as it expands from one state to another, and as planned activities must be continually adapted to unforseen constraints, the available written documentation on the OGCP is rapidly becoming obsolete.* The present report reflects these limitations. Yet voluminous though it is, the report presents only a small fraction of the total

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* NDDB's original project proposal to the GOI was written in 1977. The OGCP was not approved by AID until December 1978, and the first shipment of commodities did not arrive until mid-1979. Thus, while the project's basic objectives, strategy, and rationale remain the same, important changes have occurred in its implementation arrangements, budget expenditures, and performance benchmarks. Therefore, under preparation as a separate document to this report is an updated project paper on the OGCP.

information gathered by the Team. Indeed, the report constitutes a summary of the Team's consensus regarding what project components and issues deserve priority attention. By striking our own compromise between providing too little and too much we will undoubtedly not satisfy all the readers of this report; however, the Team is confident we have presented a fairly accurate and balanced perspective of the OGCP undertaking as a whole.

D. Overview of the Report and Its Findings

In general, all members of the Assessment Team came away with a favorable and supportive opinion of the Oilseed Growers Cooperative Project. It is viewed as basically well-conceived, feasible, and urgently needed. The Team was particularly impressed by the technical expertise and high motivation of NDDB/OVOW personnel. These young professionals admit they still have much too learn about the oilseeds industry. They acknowledge they have made mistakes and are sure to make more in the future; but they are not defensive about their own or project deficiencies and are open to suggestions. Considering this very high quality of human resources available to the OGCP, it is possible to assert that it is probably easier for the project to succeed than to fail. It was therefore decided to begin our report with an initial chapter (Section II) highlighting some of the project's strengths. In the Team's view, most of the positive aspects of the OGCP have been ignored in recent reports and correspondence concerning the project.

The report next surveys "Production Enhancement Activities" (Section III). The Team identified this component as the single most critical area of project operations; it is also the one experiencing the most serious deficiencies, in part because it has been suffering from relative neglect by project leadership and CLUSA monitoring staff.

In Sections IV and V the report addresses a variety of issues involving processing and marketing activities. The Team found that NDDB does not really contemplate "buffer-stocking" but rather the commercial procurement of imported edible oils for resale in the project area--an operation promising significant income potential at very low risk. In general the Team found processing/marketing issues to be much less worrisome or controversial than originally suggested by our scope of work.

In Section VI we present a review of the project's budgeted line items, with particular attention to the new line items financed by resources deposited to the project's second special account (which holds local currency generations in excess of 6,000 rupees per ton of donated soybean oil. Here we assess the rationale for each new line item as a necessary project component, but we also make a plea for budgetary flexibility and relaxed accounting of project reflows. Such flexibility is vital to allowing project leadership to take full advantage of income opportunities which are continuously evolving.

The report concludes with a section on CLUSA-USAID-NDDB relationships, which presently leave much to be desired. Here the Team urges USAID to make very explicit its needs for project monitoring information, to discipline itself to meet these needs only through CLUSA, and that CLUSA answer USAID requests for information in a precise and constructive manner--preferably through scheduled written reports and periodic meetings, not ad hoc memos and letters. The Team recommends that CLUSA add a professional agronomist to its staff to monitor the project's production enhancement activities more effectively. The Team urges that USAID's currently high profile in project management/monitoring activities be scaled back, thereby allowing CLUSA full accountability for effective compliance with its supervisory tasks.

In the Appendix to this report the reader's attention is directed to a variety of brief articles on topics of oilseed/edible oil trading and marketing information, contributed by the Team's marketing specialist. These materials dramatize the highly specialized and speculative nature of the oilseed business. They serve as a reminder to project leadership and monitors that they must never stop learning, that they can never know enough about that business.

The Team wishes to take this opportunity to thank the NDDB and particularly OVOW staff for its gracious hospitality, its openness, and its great patience in the face of intense questioning during the Team's visit to Gujarat. We are also indebted to CLUSA for its unstinting cooperation with our assessment of what is a very complex project.

Finally, our thanks to USAID/India staff and especially the members of the OGCP Project Committee for their support in making the assessment as candid a discussion of the issues as possible.

The Team Leader would like to express his great respect and appreciation for the diligent efforts of all members of the Assessment Team. Sooner or later every one of the members made special contributions and extra effort that were to prove critically important to the final report.

II. PROJECT STRENGTHS

The Oilseed Growers Cooperative Project is an exciting undertaking with excellent prospects for success. Its strengths are inherent in a number of areas: in the project's design, in its implementing agencies, in its potential impact at the farm level, and in its openness to learning and new development opportunities for the future. In sum, large and costly though it is, the project represents an excellent use of U.S. taxpayers' money for development assistance in general, and for the Food for Peace Program in particular.

A. Project Design

The OGCP is grounded on a simple tenet which has long been accepted in developed economies but has rarely prospered among the relatively powerless rural masses of the Third World. This tenet states that the business of farming does not have to stop at the farm gate; rather, any activity ranging from growing food or fiber, processing it into finished goods, and distributing them to final consumers are all acceptable functions for farmers to control. By the same token, profit opportunities presently available in the production, processing, and marketing sectors can appropriately be captured by farmers.

In India this tenet has already been successfully demonstrated in the dairy industry. There Anand Pattern Cooperatives link even landless laborers owning one milk animal with a nation-wide network of dairy plants, cattle feed mills, breeder farms, railway and trucking services, and thousands of milk distribution retail points serving the principal cities of India. Known as "Operation Flood" and financed by commodities donated by the World Food Program at the outset, with additional support from the World Bank, the scheme will soon embrace some 30,000 village-level cooperative societies and about 10 million rural producer households.

The Anand Pattern Cooperative model has demonstrated its ability to generate continuing income for villagers, lower commodity retail

prices for consumers, and generate thousands of new employment opportunities in-between. The model has also demonstrated the appropriate training and use of "spearhead" or "mobile" teams for village-level promotion activities. It has created formats for village society record-keeping and management, methodologies for farmer training, efficient procedures for the purchase and transport of farm-grown commodities, and has demonstrated the feasibility of nation-wide retail distribution systems for finished products.

The Anand Pattern model, as it applies to oilseeds, is promising for additional reasons as well. First, it is non-paternalistic. It does not require government direct participation, subsidies, or protection. It creates leadership structures for member representation that effectively makes project staff the employees of farmers and accountable to them. Second, the model is self-financing. While the landed value of donated soybean oil in India may be 6-7,000 rupees per ton, by the time it is sold to Indian consumers the value of currency generated is possibly 10,000 rupees or more, which represents roughly a 30 percent local contribution beyond the landed value. The project authority in turn takes the total proceeds and capitalizes most of the donation by on-lending it on a 70/30 credit-grant basis to the project's implementing agencies, like state federations of oilseed growers cooperatives. Finally, project resources are utilized to stimulate agronomic research and farm-level investments in yield-increasing technology to greatly expand existing levels of oilseed production. In other words, unlike donated food commodities that

temporarily feed the hungry and then are gone forever, the Anand/ OGCP model creates resources that can be used again and again and again to alleviate the problems of hunger on a continuing basis.

B. Implementing Agencies

The OGCP was initiated and continues to be supervised (and effectively controlled) by the National Dairy Development Board through its Managing Committee for Oilseeds and Vegetable Oils. The NDDB is an instance of institution-building at its best. The Board basically sees itself as a conduit rather than a depository of development resources and responsibilities. Although it has managed tens of millions of dollars in currency generations to develop an integrated cooperative dairy industry, even though it has overseen the construction of dozens of modern dairy plants and cattle feed mills, and even though it has recruited and trained thousands of technicians and farmers, the NDDB remains an agency without an empire. Its total assets, mostly in buildings for the Anand campus and headquarters, hardly exceed US$ 5 million. NDDB staff members are continuously "hived off" to implementing agencies created by the Board such that, even though the scale of Operation Flood has doubled in recent years, NDDB permanent staff members--about 1,100 nation-wide --have remained stable throughout the last half-decade.

NDDB is a highly experienced institution. Its Engineering Division has planned and supervised the construction of scores of multi-million dollar industrial facilities. Its Farmers Organization Division

has promoted the organization of thousands of village-level cooperative societies throughout India, and farmer-participants in NDDB training programs--men and women--now number in the millions. Its Information Operations Division works with some of the most modern computer hardware available in India, and it maintains a nation-wide data collection system which measures project performance indicators on a monthly basis.

NDDB staff is highly motivated. The institution recruits most of its technicians directly out of high school or college, before they are "contaminated" by employment experience in the public sector or in private industry. All are required to serve six months minimum duty with spearhead teams operating at the village level. NDDB's agenda for new recruits is straight-forward, namely: Get to know and respect the villagers and their leaders; they are the people for whom you work; you are their employee. With such a focus, skills acquired through on-the-job training in village promotion activities are not easily transferable to jobs in other institutions, which shows up in the NDDB's very low rate of personnel turnover. Although wage rates at NDDB are competitive with other employers initially, they gradually lose ground thereafter. Even so, personnel stay on with NDDB because they gain considerable satisfaction (psychic income) from their work. They also can achieve positions of important responsibility at very young ages. For example, the average age of NDDB staff is only 27 years old, and the Deputy Director of OVOW is only 35 years old.

The Assessment Team found NDDB staff as well as personnel of the Gujarat state federation to be extremely open, willing to answer any question, completely patient, always cooperative, and rarely defensive about problems or deficiencies identified by Team mambers. Theirs is the apparent security--rarely found in staff of development agencies--which arises from the conviction they have done their best and have reason to be proud of what they have accomplished to date. But this security is blended with humility, even a sense of vulnerability. These technicians see themselves as beginners in the oilseeds business, with a steep learning curve ahead of them. But they sound and act like winners, and as a matter of fact NDDB is an institution which has not yet failed in any important endeavor it has undertaken.

For the record, one last point about NDDB should be made. The institution has an impecable financial record in over 15 years of operations. NDDB employs a continuous internal audit, which authorizes absolutely all expenditures before disbursement occurs. Additionally, NDDB contracts an external audit once a year. At the level of state federations and village-level societies, these institutions are audited routinely once a year by their respective state Cooperative Department. State-appointed auditors accordingly classify each society every year as an "A", "B", or "C" cooperative--their grades reflecting the extent to which their records are up-to-date and accurate. Each OGCP society has a paid Manager who is NDDB-trained and whose salary is partially subsidized by the project.

C. Project Impact

The OGCP already is generating income benefits to participating oilseed growers. They are so obvious that it seems only a matter of time before the project's pace of membership growth begins to catch fire in a big way.

To begin with--taking the example of Gujarat--the project's implementing federation (GOGCF) offers participating growers a procurement price which is at least 10 percent above the prevailing market price. But even more significant benefits involve the way produce is weighed and dicounts calculated. Using a large hanging bar scale to weigh whole sacks (aprox. 100 kgs) the project gives the grower a fair weighing of his delivered oilseeds, in this case groundnut, and without charging him a sales commission of 1-2 percent as is the case in the regional market yards. Next, using a much smaller hanging bar scale of about 250 gram capacity, the project calculates the grower's shelling percentage and discount for extraneous matter from a sample of his delivered supply. It is noteworthy that the sample is prepared, shelled, and screened by the grower himself with the help of his neighbors. Traditional market transactions with traders result in loosely estimated shelling percentages of 60-65 percent; in contrast, the OGCP typically measures 69-70 percent and sometimes higher. It is normal for traders to estimate--often without sampling--extraneous matter of 500 grams per 100 kilo sack. Samples weighed by the project average around half that much. Thus, careful and fair weighing of samples create a built-

in incentive for growers to produce higher quality and better-cleaned commoditities.

The project goes one step further by offering to growers the so-called jhangard system, which works as follows. After all weights and discounts have been calculated, the grower has the option to deliver his produce to the project but withhold his sales order. Thus, if the market price goes up in the future the grower is free to sell his produce on the day he finds most beneficial; he thereby relizes a speculative gain but without incurring storage costs, which are completely borne by the project. Moreover, the project will help the grower finance his waiting period by offering him an advance at 8 percent interest equivalent to 70 percent of the total value of his delivered grain as calculated on delivery day. The jhangard system still offers one more advantage as well. Because it is a consignment and not a sale, the transaction is legally exempt from the Gujarat 4 percent groundnut sales tax, which is normally paid by the seller not the buyer. Assuming he harvests his crop in early October (following the Kharif season), the grower can play the jhangard system for up to a theoretical maximum of eight months, because the only limitation is that he complete his sale by June 30, end of the fiscal year.*

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* In point of fact few farmers can afford to play the jhangard system, according to GOGCF staff. This is because a farmer must wait at least a month or two until the harvest glut period passes, and significant gains may require a wait of 4-6 months or more. Therefore, actual participation in the jhangard system is estimated by project staff at 5 percent of all farmer-members. Nonetheless, the mere fact that the system is available constitutes a symbolically important human touch for the project which allows it to compete more successfully against private traders.

Of course, the OGCP offers other benefits to producers besides commodity price incentives. These include the supply of improved seed (when it is available); assistance in procurement of fertilizer, pesticides, and other cash inputs to increase yields; assistance in arranging production loans to finance packages of improved packages involving the above; and limited technical assistance (farm visits) to demonstrate improved technology. If one is a farmer-demonstrator, he acquires a subsidy of 1,000 rupees from the project to finance inputs for use on demonstration plots. This individual possibly gains local prestige from the fact that beside his home is erected a handsome metalic sign provided by the project which advertises (in Gujarati script and multicolor logo) that he is a farmer-demonstrator. Last but not least, the grower can expect a patronage refund of profits generated from the processing/marketing activities of the oilseed growers federation to which he belongs--providing, of course, that profits are made. Given the recent performance of the Bhavnagar Vegetable Products Plant (see Section IV, Processing) such profits may begin to flow in the present fiscal year. So far during 1980-81 the GCOGF has earned net profits of 770,000 rupees, of which 4 percent will go as a share dividend and 1 percent as a bonus payment to grower-members.

D. New Development Opportunities for the Future

Aproximately 3 percent of the estimated seven-year project expenditures are ear-marked for research and development use. These funds (see Section VI) are allocated for operations research, market

research, development of new products and processes, and so-called "cooperative development". The last line item is devoted to studying opportunities for expanding the Anand Pattern Cooperative model to other commodity sectors. NDDB is presently conducting studies covering fisheries, jute, cotton, and vegetables, which have all been requested by the GOI.

Additionally, conversations with the GOI are well-advanced (and official approval is seen as "imminent") concerning NDDB's request for a license to import soybean oil on a commercial basis. Permits are also being requested which would allow the project to blend soybean oil with groundnut oil, and to export HPS (hand picked selected) groundnuts. It could be argued (and not without merit) that so many research studies and requests for permits or licenses could expose the NDDB to too many new ventures, thereby neutralizing its effectiveness by assigning more tasks than it can handle. But it can also be argued that NDDB is continually strengthened by these new opportunities. They keep the institution alert, always stretching its knowledge base, continually challenging staff to test its expertise against new problem areas. Thus, the project authority is an institution unlikely to grow stale; to the contrary, it appears programmed to constantly energize itself. For project insiders as well as outside analysts who monitor its progress, the OGCP is likely to generate learning opportunities for many years to come.

III. PRODUCTION ENHANCEMENT ACTIVITIES

The Assessment Team's field travel period was altogether too brief, and visitation activities too limited in time, to afford the Team a reasonably comprehensive review of project achievements and planned future actions in the production enhancement area. However, based on what we could observe, the general consensus was that project accomplishments in production enhancement were well below the Team's expectations. This was both a surprise and a disappointment. It was surprising because in Asian experience programs to expand yields and deliver supporting inputs and extension services tend to be far more successful than those which seek to create stable markets to adsorb the production expansions achieved. It was disappointing because the success of the production enhancement component--certainly in the medium- and long-term--is a prerequisite for satisfactory achievement of the project's objectives overall. As the Anand Pattern Cooperative model demonstrated, the entire project must begin and end in the villages.

Several areas of apparent deficiency were identified. They involve (1) mobile teams, (2) cooperative membership, (3) supply of credit and production inputs, (4) grower demonstration plots, (5) district farms, (6) research linkages, and (7) storage facilities. Each of these problem areas are discussed in greater detail below.

A. Mobile Teams

With due consideration for variations between states, the project's concept of what constitutes a "mobile team" has become rather ambiguous. For example, in Gujarat--for a given district--project field staff is divided into one or more "area offices", each of which is directed by an "area officer" or "team leader". The activities of the area office supposedly cover 2-3 development blocks, each consisting of 2-3 talukas. A taluka covers about 50-60 villages, of which the project will normally organize about 20-25 cooperative societies. Serving the taluka and its grower societies are usually about five OGCP fieldworkers, i.e., one fieldworker for every 4-5 societies or every 10 villages. For every two talukas (and 10 fieldworkers) there is a project supervisor, also sometimes known as a "team leader". Complicating matters further, fieldworkers are normally divided into two-man teams consisting of a cooperative promotion specialist and an agricultural extensionist. Thus, a "mobile team" can conceivably mean two people (at the specialization level), five people (at the taluka level), 11 people (at the bi-taluka level), 22 people (at the block level), and so on. To avoid such ambiguity--which will only increase as more states are included in the project--it would be useful for OGCP performance indicators to specify, for each state, the total number of fieldworkers deployed. This will permit project managers and outside monitors to know very quickly the adequacy of project coverage by calculating such ratios as (1) number of societies per cooperative specialist, (2) number of farmers (or farmer demonstrators) per agricultural extensionist, etc.

Project statistics currently list seven mobile teams deployed in Gujarat and two in Madhya Pradesh. These teams have been swamped with work. In Gujarat they cover 290 villages. They have organized an average of 31 village meetings per month, given 170 film showings since project inception, have trained 730 farmers in improved oilseed cultivation practices, have distributed a cummulative total of 81.2 MTs of improved seed, have supplied 1,843 liters of pesticide, and 2 tons of fertilizer. They have supervised the procurement of over 12,419 metric tons of groundnuts from grower-members. Cooperative specialists on Gujarat mobile teams have organized 133 village-level societies, of which 28 have been officially registered. An "organized" society implies a broad range of difficulties to be overcome by the mobile team. In addition to "selling" the project concept, they must select village leaders for motivational training at Anand or technical training at a district or other farm; they must set up a complete set of cooperative records, recruit and help train a paid manager, and supervise bookkeeping and management practices on a periodic basis; they must put up with difficult living conditions in the village where they are based; and they must perform their tasks with a minimum of external supervision, in-service training, and logistical support from the project.

The success of the entire project will probably hinge on whether these young, fairly inexperienced, but highly motivated fieldworkers are effective in organizing Indian villagers. But equally important,

OGCP achievements will critically depend on the project's ability to recruit and deploy ever increasing numbers of mobile teams and field-workers. In this regard--again using the example of Gujarat--the project has begun to lag badly. In the so-called "pre-project year" of 1979 only one team was organized. In the second, third, and fourth quarters of the first official project year a total of six new teams were deployed at the rate of two per quarter. However, in the last two quarters (through December 1980) no new teams were formed. This situation must be reversed immediately. The original project proposal estimated some 40 mobile teams would be deployed by the end of the second year; at present there are a mere eight, including one in Madhya Pradesh. If the project is to have any chance of catching up with its performance benchmarks it would appear to be a prerequisite that new mobile teams be recruited, trained, and deployed at no less than a minimum rate of six teams per quarter per state. To say the original mobile team estimates were unrealistic only creates a bigger issue, because the project's oilseed procurement and processing targets (upon which the technical feasibility of the plants and distribution system is based) are all linked--at least in the medium- and long-term--to the assumption of rapidly swelling numbers of participating village-level societies and grower-members.* In this sense, the OGCP's inadequate deployment of mobile teams constitutes a far more serious bottleneck than inadequate acreage for district farms or scarcity of

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* In the short-run OGCP plants will be required to compete directly with other traders for buying the production of non-member farmers, either directly or through state marketing yards. Joint procurement operations with state marketing federations will be the likely norm until member-grower production is sufficient to meet the entire raw material requirements of the plants.

improved seed and other cash input supplies. For these reasons the matter should be given the highest priority attention by project management and CLUSA monitors.

B. Cooperative Development and Equity

The NDDB has established an enviable record of concern for equity in Operation Flood, its vertically integrated cooperative milk production scheme. In that program any person who owns a milk animal is eligible for membership in the village-level cooperative society. It has been documented that those households owning only one milk animal and who have no agricultural land will benefit more, in relative terms, than those who own both land and dairy cattle. This concern for increasing the incomes of rural people on an equitable basis--of reaching the very poorest of the rural poor--is of central importance to the NDDB and its staff. Transferring this concern for equity in milk production to oilseed production is a more complex matter. Obviously, the returns to oilseed production are in large measure a function of the amount of land owned by individual cooperative member-growers. Land is a scarce resource, and in India--as elsewhere --it is a fairly reliable guide to determining income class and level of wellbeing of its owners. The fact that land resources themselves are inequitably distributed at the village level serves to complicate the organization of oilseed cooperatives to achieve an equitable distribution of benefits.

The model by-laws for the village oilseed growers cooperative are carefully constructed to assure equal service and voting power

among members regardless of land holding. However, for a variety of historical and practical reasons, the growers societies exclude from membership (a) agricultural laborers, since they own no land upon which credit systems are based, and (b) sharecroppers, since they do not exist under the law even though they exist in fact. In addition, grower societies normally do not invite female heads of households, primarily widows, to become members since they are by custom excluded from male societies.

Finally there is a lurking question about the landholding and income stratum from which village grower society membership is principally drawn. The Assessment Team found in an extremely small sample of three societies that the range in holdings from the smallest to the largest grower members was 2-4 hectares at one extreme and 14-24 hectares at the other. No medians were reported, but the range may be compared to the Gujarat state average of 3.7 hectares per farm in 1976-77. In the Surashtra region where the Team visits occurred, the average farm size is reported to be 10 hectares and in the Bhavnagar District it is 14 hectares. The issue here is whether larger farmers may be disproportionately represented among cooperative society membership. It might be useful for the Project Authority to stratify each village by land holding classes--at the time the cooperative is originally promoted--to establish a baseline for subsequent measurement. If it is found that membership is being consistently drawn from the upper strata of the land holding scale, the project may wish to

take special measures to enlist the cultivators who are less well off.

The question of extending some benefits to resident agricultural laborers would appear to be more easily resolved. First, to the extent that these laborers are paid in-kind at harvest, the cooperative society could offer a kind of associate status so that the laborer's produce could be marketed through cooperative channels. In this way landless village residents would enjoy a share of the returns which accrue to cooperative membership through end-of-year patronage refunds, and this would in effect constitute an increase in the remuneration they receive for the sale of their labor services. Similarly, in those instances where village societies are used as retail distribution points for OCCP edible oil products, the cooperatives could extend associate membership status to landless residents to allow them to purchase project commodities at favorable prices. This action would help to insulate the most disadvantaged rural consumers from exaggerated peaks in vegetable oil prices.

Since sharecroppers do not exist under the law it would be unrealistic to suggest that cooperatives recognize their existence and, hence, give them a legal basis for claiming the land which they till. Nonetheless, it is conceivable that an associate membership status could be devised for them also which would allow access to project marketing services and income benefits.

Accepting female farm operators as society members is largely a matter of education, of transforming a longstanding separation of the sexes in farm tasks, and one which the Project Authority has both the will and the ingenuity to address.

C. Breakdowns in Input and Credit Supply

According to the CLUSA-financed Operations Research Study conducted in Gujarat, the contribution of improved practices of technical inputs--including improved seed, fertilizer, fungicide, pesticide, and improved spacing and cultivation practices--is expected to raise groundnut yields (under rainfed conditions) by 30 percent over the seven year life of the project. According to project documents, the cash inputs would be provided as credit-in-kind, with loans deducted at the time harvest supplies are sold to the project. For the supply of both inputs and credit to finance them, the project originally proposed that existing cooperative infrastructure at the village level (credit and multiple service societies) be utilized to the extent available, with back-up from state cooperative banks.

In practice the above-mentioned reliance on institutions beyond direct project control has apparently resulted in repeated breakdowns in the supply of inputs and credit needed by OGCP grower-members. For one thing, credit societies do not exist in many villages; where they do they are prevented from lending to growers with delinquent loan balances outstanding with the state cooperative bank. In our visits to village societies and demonstration plots, the Team learned that ferti-

lizers have been in short supply at planting time. When stocks are available, the formulas are not clearly appropriate for local soil conditions. The Team suggests that the project immediately explore the availability of equipment as well as determine the most appropriate locations for the establishment of soil-testing facilities to serve grower members. Soil tests are expected to be helpful in adapting cropping patterns, cheapening the cost of fertilizer by eliminating unnecessary nutrient components, and in tailor-making fertilizer dosage recommendations to highly variable local conditions, even within the same farm. As a first step, all farmer-demonstrators should have their soil tested prior to conducting any sort of trial. Ideally, as the project begins to replicate practices proven on the demonstration plots, all adopters of improved technology should first have their soil tested.

The Team noted that fungicide use was not at all generalized in the project areas visited. The use of this chemical in treatment of seed stored by the farm household can decisively improve germination and yield--a benefit which deserves priority attention until the project is in a position to supply adequate supplies of improved seed. Weed, pest, and disease control recommendations are still not broadly demonstrated, much less replicated, in the project area. This situation is due to a variety of constraints including unreliable input supply, lack of district-level farm facilities for training grower-demonstrators,

and ultimately the absence of a convincing technology promising significant yield breakthroughs because of the project's still-tenuous linkages to state and regional agronomic research stations. The fact that mobile teams are currently over-burdened with start-up promotion tasks only serves to aggravate the other constraints. The problems involved are complicated and will not be solved quickly. Yet the search for solutions must be intensified immediately if the project's yield expansion assumption--which in the long run will be important for OGCP success--is to prove correct and achieved in time.

D. Improved Seed Supply

Of the project's input supply constraints by far the most crippling is the absolute scarcity of improved seed. The crux of the problem involves the limited acreage available to the project for seed multiplication activities. The recent experience of other developing countries with seed multiplication programs clearly demonstrates that successful operations depend on two essential prerequisites: (1) seed farms and their required seed treatment facilities must be fairly large-scale undertakings run on a centralized basis, and (2) these operations are best managed by private sector enterprises. For the project to eventually achieve dramatic yield increases in oilseeds it must be able to make available to growers genetically improved seed on a massive scale, seed of a sufficiently consistent quality that growers will entirely abandon the storage of their own seed stocks. The Team feels that for the project as a whole there will eventually arise the need for perhaps four seed plants of about 100 ton daily

capacity each. On the other hand, in the absence of sufficient farm properties available to the project for seed multiplication activities, stop-gap strategies for seed supply may have to include village-level schemes where one grower of every ten will specialize in the production of improved seed for his neighbors. The Team is fully aware that the latter approach would create complex problems of local-level training and supervision to guarantee high seed quality; the Team only indorses it as a strictly temporary activity conducted with already-selected grower-demonstrators until such time as more adequate seed farm acreage and seed treatment plants have become operational.

E. Demonstration Plots

Although well behind aggregate project targets, the few mobile team fieldworkers currently at work appear to be meeting their individual targets rather successfully, particularly with regard to the organization of village-level demonstration plots. In Gujarat some 125 farmer-demonstrators have been trained and plots laid out. A wide variety of trials are underway including irrigation frequency, seeding density, fumigation practices, herbicide use, and general performance tests of local and external seed varieties of which a couple appear to be quite popular with farmers.

However, a number of deficiencies should be noted for prompt attention by the project. The Team felt that many trials they visited reflected poor understanding of experiment design. For example, some plots

were attempting to test several variables simultaneously. It also appeared that demonstration plot record-keeping is somewhat casual and not well standardized from one project area to another. The spill-over of proven practices from the demonstration plots to normal cultivation areas of even two-year grower-demonstrators appeared negligible. The demonstration plots may well fill a symbolically important function by serving as instruments for promoting dialogue between growers themselves and with project extensionists, but as yet these plots are apparently not playing a central role in the replication of new technology at the village level. Again, this is not necessarily the fault of the demonstration methods employed but may be due to the absence of a dramatically successful new technology--built around genetically improved seed material--which is capable of generating the kinds of results that farmers can get excited about.

F. Price Support

The project documents envisage that in the first year a moderate price incentive will be offered to grower-members--one distinctly above prevailing market prices--mainly to gain the trust of growers. The project proposal further states that the OGCP goal will be to provide an end-of-year bonus equivalent to 10 percent of the purchase price paid to farmers. In 1977 when the project proposal was originally drafted, it was believed that a price of 2,000 rupees per ton (for groundnut)

would constitute an adequate incentive. This procurement support price never came into effect due to the prevalence of considerably higher market prices. With the increase in production costs and the considerable uncertainty of weather conditions and market price fluctuations at harvest time, it is necessary to announce a support price to attract the production response from grower-members which the project's success will increasingly depend on. The majority opinion of the Team is that a price support program is needed which would guarantee the farmer 90 percent of the average cost of production, including family labor, and utilizing an improved practices package of cash inputs. Such a guarantee should be calculated, revised annually, and announced to all grower-members of OGCP societies until such time as the GOI launches an effective minimum support price program. This would facilitate advance production planning by farmers. It would also improve the price structure they face and would substantially reduce the risks they face in adopting improved practices requiring cash inputs. It is suggested the project announce the support price before the sowing of the next Kharif season groundnut crop.

A minority opinion of the Assessment Team holds that a minimum support price--if it came into force as a result of low market prices at harvest time--would increase the processing costs of cooperative plants above those of private processors, and would result in an "operational loss" for the project's processing component. The majority of the Team agrees but notes that whether the difference between the minimum

support price and the open market price is characterized as a cost, or an expenditure for procurement support, or an operational loss really makes no difference: the project still pays, either by covering the loss directly or by reducing the profits distributed in patronage refunds to the growers. It should be mentioned that given current price trends the probability of losses for price support occuring more than two years in a row is quite minimal. However, if over a longer period of time the average cost of production is consistently higher than the prevailing open market price of oilseeds at harvest time, then the project would simply not be financially viable. Were it to occur, such a situation could only be corrected by a profound shift of relative prices between oilseeds and other crops, and this could only be accomplished at the macro economic level by GOI policy-makers. On the assumption that most of the time the average cost of oilseed production to growers will be less than prevailing market prices at harvest, the Team has suggested a price support scheme as one of several legitimate uses for funds contained in the line item entitled "Operational Losses".

G. Farmer and Extensionist Training

Based on its work in organizing India's dairy industry under the Anand Cooperative Pattern, NDDB has demonstrated a great respect for rural households, a sensitivity to their needs, and considerable ingenuity in overcoming all manner of obstacles to assist them. NDDB's spearhead or mobile teams are, in themselves, excellent instruments

for on-the-job training of fieldworkers. The NDDB has sponsored the development of high-quality films and visual aids--with sound tracks or narratives translated into several indigenous languages and dialects--which tell the project's story and give palpable images of its aspirations. In the training of farmers and fieldworkers NDDB must be considered among the best experts in India.

Unfortunately the Team did not have time to review project training activities at the village level nor learn how mobile team members are skill-trained. We did not sense, however, that the OGCP has yet evolved a detailed and coherent training strategy or plan that is being systematically implemented on a state-by-state basis. It appears that the project's training strategy was based on the district farm concept; on such farms grower-demonstrators and fieldworkers were to be continuously trained. But in Gujarat the project has encountered serious difficulties in acquiring such farms, and the acquisition and equipping of these properties is badly delayed. As a result, it would appear that training plans theoretically based on the use of these farms have simply been postponed, a possibility that has evidently limited recruitment of mobile teams as well. If this is the case, it is imperative that NDDB develop contingency training plans immediately. Such plans should avoid heavy reliance on training center facilities because these will not be available in the short-run. Perhaps as one option newly-recruited fieldworkers can be assigned as interns to existing mobile teams, while newly-selected grower-demonstrators should be apprenticed for a few days training at the farms of veteran demonstrators. While far from ideal, such arrangements are far superior to

doing nothing until training facilities have been built.

E. District Farms

The original OGCP proposal envisaged the use of district-level farms as a pivotal component around which production enhancement activities would be structured. By the end of the project's First Stage (now scheduled for mid-1982) there were to be eight district farms in operation, each of an ideal size of 400 hectares. The farms were to serve several purposes. First, the farm would be linked with an "Area Agronomic Center", itself of 500 hectares, where sophisticated trials of improved oilseeds technology (adapted to the micro-ecologies of different districts) would be carried out. The Area Agronomic Center would in turn be linked to the state agricultural university, and regional or national research stations such as ICAR and ICRISAT, from which the results of basic plant breeding research would be taken for local testing. In addition, there would be downward linkages from the district farm to the demonstration plots in each participating village.

Of the anticipated 400 hectares of each district farm, 300 hectares were to be reserved for the multiplication of improved seed using breeder seed taken from the Area Agronomic Center or regional research stations. Seed multiplication activities were also to be organized at the village-level utilizing trained grower-demonstrators and other selected farmers, who would receive a price premium for

growing seed stocks. Fifty hectares of each district farm was to be reserved for demonstration plots of improved cultural practices, irrigation trials, and farm-level storage experiments. On such demonstration plots fieldworkers and farmers were to be trained on a regular basis at intervals as frequent as every two weeks. It was also originally conceived that the district farms would serve as headquarters for as many as fifty mobile teams at work in the villages.

Acquiring district farms and making them operational is--together with mobile team deployment--the project component which is lagging furthest behind. More than half way through Phase One, the project has only acquired two farms: one in Gujarat with an area of 18 hectares, and another in Madhya Pradesh with an area of 71 hectares, both far below the minimum requirements cited in the project plan. This situation arises not for lack of effort by the Project Authority nor for lack of interest on the part of state governments. Rather, it stems from the basic fact that the number of developed large farms is much smaller than originally thought* The Gujarat State Government has offered to transfer to the project farms currently under the control of the Department of Agriculture or block-level and even village-level panchayats (rural administrative councils); however, in doing so it would require that all personnel currently employed on these farms be transferred as well. For reasons of both economy and operational efficiency, this is a condition the Project Authority has been unwilling to accept.

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* Recently the project surveyed 16 candidate farms and found only 9 to be acceptable with a combined area of only 300 hectares. The project proposal originally envisaged 1,600 hectares under district farms in Gujarat alone.

In Madhya Pradesh the situation appears to be somewhat better. Farms now in the possession of the state oilseed growers federation total 71 hectares, and the Assessment Team was told that other properties will soon be acquired as well.

It may be surmised from the above that the original plan for district farms will not be fulfilled. However, the Project Authority in Gujarat is considering several options to correct the district farm scarcity. One option would be to purchase or lease farm areas (as distinct from receiving them in donation) but this possibility would require large investments not presently covered by the project budget. A second more promising option would be to enter into collaborative arrangements with the Gujarat Agricultural University or the Gujarat State Seed Farm to secure the required acreage. Under such arrangements the project would contribute resources to finance infrastructure improvements, training facilities, and equipment required to make existing properties much more operational. But existing staff payrolls for these farms would not be assumed by the project. Administration of the properties would be conducted by a Management Committee that included representatives of NDDB, Gujarate Cooperative Oilseed Growers Federation, Gujarat University, etc. Discussions to achieve jointly-operated properties are in an advanced stage. However, there remain questions of management control, institutional philosophy, and cost-sharing that are yet to be resolved.

It is clear to the Assessment Team that the functions originally ascribed to the district farm concept--and certainly the district farms themselves--are essential to the success of production enhancement activities and, hence, to the long-run capacity of the project to generate income benefits for growers via technological breakthroughs that expand oilseed yields. Finding solutions to the problems regarding district farms deserves the urgent and sustained attention of NDDB and the Gujarat Cooperative Oilseed Growers Federation, as well as the new state federations which participate in the project. The Team is confident that the Project Authority will be able to resolve these problems, just as it has solved many other seemingly intractable difficulties in the past. If requested by the project, CLUSA and USAID should provide any possible assistance to NDDB/OVOW in dealing with district farm-seed multiplication difficulties. Short-term technical consultants with specialized agronomic expertise may prove useful. In any event, progress on this front must be made quickly, and no doubt it will be a matter of serious scrutiny during the joint NDDB-CLUSA-USAID-GOI evaluation to be conducted at the end of the project's First Stage.

I. Research Linkages

Currently the project's linkages to agricultural research institutions are quite weak, a consequence at least partially due to the slow movement in developing Area Agronomic Centers and district farms. According to project staff, the Indian Council of Agricultural Research (ICAR) sets its own research agenda, which is discussed in an annual workshop. Project staff have informal communications with, and receive

bulletins from, ICRISAT at Hyderabad, which has a very large collection of oilseed germ plasm. The project has made initial contacts with the newly-formed National Research Center for Groundnut at Junagadh in Gujarat. Contacts are apparently increasing with Gujarat Agricultural University, which has expertise in oilseed breeding, agronomy, plant pathology, etc. But the project's relationships with the above institutions are still tenuous, contacts are still infrequent, and as yet no closely coordinated planning between them has occurred.

As the state federations acquire access to suitable acreage in district farms, more will need to be done to regularize staff contacts in a systematic program of basic research (at the level of ICAR, ICRISAT), adaptive research (by the project), and demonstration trials at the village level in support of seed multiplication and agronomic extension activities among grower-members. For this purpose it would be highly desireable if the project's adaptive research activities (at the district farm and village demonstration plot levels) were to come under the guidance and supervision of scientists from ICAR, ICRISAT, Gujarat Agricultural University, and the National Center for Groundnut at Junagadh. The expertise of these institutions will greatly assist the project, but what is happening on village demonstration plots and in farmers' fields should nourish the efforts of research scientists. To this end there will need to be a systematic and regular flow of information from farmers through the project extension workers to the applied researchers at the district level and on to the scientists above them. Finally, oilseeds which look promising on research plots and which are

proven on farmers' fields should move quickly into the seed breeder-foundation-multiplication system.

The Assessment Team thinks it noteworthy to mention that USAID is now preparing a Project Paper for Agriculture Research which would, among other things, address basic oilseed research with ICAR. This project presents a possible opportunity for collaboration which may be of interest to the Project Authority and state federations.

J. Monitoring Considerations

The deficiencies identified by the Team within the production enhancement program came as a surprise because we expected this area to be OGCP's leading sector. Equally surprising, though, is the fact that CLUSA monitors failed to identify the problem areas as sufficiently serious to merit priority attention by the Project Authority. It is the Team's belief that CLUSA monitors--already distracted by many extraneous issues regarding project accounting and other procedures--simply focused in recent months on what they know best, namely: processing technology and commodity procurement logistics involving the donated soybean oil. We may be dealing, therefore, with a blindspot in CLUSA monitoring capability, i.e., the absence of a CLUSA staff member with professional training in agronomy.

Given the central importance of production enhancement activities to the long-term success of the project, the Team suggests that CLUSA's Technical Assistance OPG be amended to permit the recruitment of a professional agronomist to be assigned the responsibility of full-time

monitorship of OGCP's production enhancement component. This individual should have extensive Asian experience in rural development projects. Ideally, he should have practical expertise in seed multiplication activities, agronomic research, lay-out of demonstration trials, farmer training activites, and be familiar with the cultivation of groundnut and soybean crops.

A second monitoring issue involves NDDB/OVOW plans for measuring the project's impact at the farm level. From document review it is apparent that NDDB has excellent (third generation) computer processing capacity at Anand. For sophisticated design and analytical skills the project can draw on one of the best econometricians in India. OVOW has gone so far as to set up a provisional sample design which stratifies project participants by land holding. They plan to employ a survey research questionnaire on a 20 percent sample of grower-members plus a control group of non-participating farmers. The precise impact indicators to be used have apparently not yet been finalized, but one would presume they would include changes in yields, income, production costs, and labor use on a single commodity (oilseed crop) basis.

There is no doubt in the Team's mind that the Project Authority has the necessary expertise and equipment to conduct adequate impact monitoring at the farm level. However, it is suggested that NDDB/OVOW not only consider computer-compatible survey research questionnaires but also less sophisticated instruments. For example, the Team made available to project staff a visual instrument which uses images de-

picting use of family and hired labor, draft animals, seed, other cash inputs, and additional production costs distributed over land preparation, planting, cultivation, and harvesting stages. Such a visual format can be used by even illiterate growers; they are only required to make scratch-marks. Yields are recorded the same way. The farmer's scratch-marks can easily be converted into quantitative estimates by a trained supervisor. As tested in other countries, this kind of instrument has demonstrated that farmers themselves are capable of collecting reliable data over time on their yields, production costs, labor use, and net income on an individual crop enterprise basis. An additional advantage, however, is that the instrument belongs to and is controlled by the farmer; as such it can be useful in introducing growers to the importance of farm record-keeping and in calculating their net income on one or more specified crops from one year to the next.

K. Storage

It was the unanimous opinion of the Team that inadequate storage facilities at the village and area (block) level will soon become a serious constraint for the project. When and if membership growth combined with acreage and yield expansion begin to create geometric increases in oilseed supplies, the risk of losses in stocks awaiting transport in open storage at the village level will rise sharply. Without extensive local storage facilities the project's transportation logistics will become extraordinarily complicated, most particularly during the

harvest glut when there will exist a relative scarcity of transport vehicles and storage facilities available for lease. Finally, yard storage capacity at such central processing plants as Bhavnagar cannot be expected to expand much beyond three months crushing stocks. Ultimately, in the competition for oilseed supplies between the project and private traders, the side with the most storage capacity at its disposal is likely to be the winner.

Team members observed that the great efficiency in oilseed procurement and processing operations which has been achieved in the United States is in large measure due to the existence of a vast network of storage facilities--the grain silo system built on railway sidings--which is located throughout the production regions. We recognize that the organization of such a decentralized storage network will be more complicated in India because of its more limited rail and highway infrastructure. Local climatic characteristics would also mandate different types of storage facilities and construction materials than those used in temperate zones. Therefore the subject merits serious research and analysis.

A start was made in the original Operations Research Study which was financed by CLUSA under a complimentary technical assistance CPG on behalf of the OGCP project. The recommendations were incorporated into NDDB/OVOW planning, and as a result the project's line item for "Processing Facilities" was increased from almost 600 million rupees (the projection in the original project proposal) to 900 million ru-

pees. Most of this increase is destined for the construction of a decentralized storage network for the project. As each new state federation is formed to participate in the project, these implementing agencies--with NDDB/OVOW technical and financial assistance--are preparing their own operations plans intended to adapt project objectives to local realities. Each state should conduct its own Operations Research Study, hiring local or external consultants to assist them where appropriate. As an integral part of the scope of work for such OR studies, consultants should clearly specify a plan for construction of storage facilities adapted to the needs of the project in each state.

IV. PROCESSING

A. General Description of Oilseed Processing

The processing of an oilseed basically consists of first separating the fibrous material of the seed, which is then followed by the removal of oil by a number of different methods to yield two different types of products: the oil fraction and the protein fraction. All oilseeds are relatively high in these two essential nutrients. Table 1 shows the average analysis of oil, protein, and fiber content for six different oilseeds currently being considered by the project.

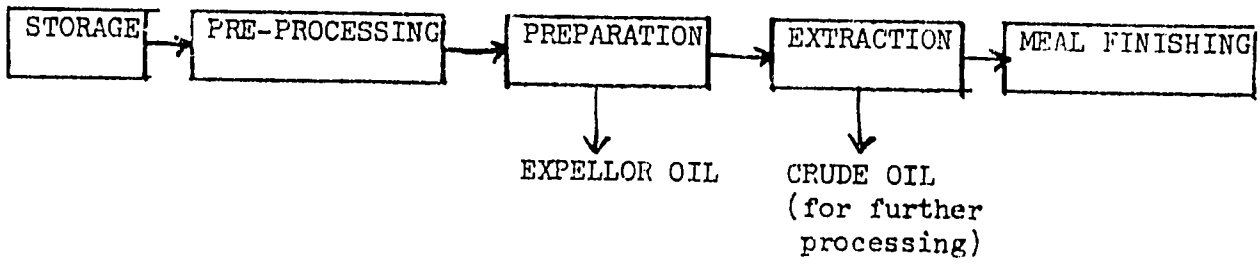
TABLE 1: AVERAGE ANALYSIS OF CONTENT FOR SIX OILSEEDS

Oilseed	% Oil(Fat)	% Protein	% Fiber
Groundnut (in pods)	36	25	17
Mustard	42	21	10
Rape seed	44	20	7
Cottonseed	23	24	17
Soybean	18	38	5
Sunflower	52	16	18

Of the above seeds, groundnut far exceeds all others in total acreage under cultivation in India. Soybean, which is native to Asia, is recently being given increased attention as an important source of vegetable oil in India. Sunflower is relatively new to India and has received only limited acceptance (mostly in Tamil Nadu State). Cottonseed, rapeseed, and mustard seed have been grown in different

regions of India for many years.

Although the equipment used to process the various oilseeds differs to meet the specific requirements of each type of seed, the basic steps in the processing process are the same for all of them. These steps include (1) pre-processing, (2) preparation, (3) extraction, and (4) meal finishing and are summarized below:



Pre-processing is basically the cleaning of the seed, but in the case of groundnut and cottonseed it also includes the removal of fibrous material, i.e., separating husks from pods in groundnut, and removing lint from cottonseed.

Preparation involves the reduction of the seed size by cracking it into smaller pieces and/or flaking the seed particles into wafer-like material. In the case of seeds high in oil content (e.g, groundnut and cottonseed), the preparation stage will include--as standard practice in India--reducing the quantity of oil by physically pressing it out of the seed particles. This is called "expellor oil". It is filtered to remove any solid material present and is then sold without further processing. The same is true for mustard seed. Other expellor oils such

cottonseed are further processed (see below) before being placed on the market.

Oil Removal or Extraction employs a solvent (usually hexane) which dissolves the oil present in the prepared oil bearing material such that the residual oil (that remaining in the meal or protein fraction) is reduced to less than 1 percent. The solvent-extracted oil is known as crude oil and must be further processed (see below).

Meal Finishing involves the preparation of the protein fraction into one or more finished products. If the finished product is for animal feed, protein denaturization, sizing, and moisture control of the meal is all that is required. If the protein is used for human food, further processing is required.

Crude Oil (excluding expellor groundnut and mustard seed oils) must be further processed. This involves refining to remove non-glyceride material and impurities, deodorizing, and bleaching of the oil. Following these procedures the vegetable oil may be "winterized" (hydrogen added) to change its melting point and improve its storability. Winterized oil is known in India as Vanaspati; margerine is one form of Vanaspati.

In actual practice the removal of the oil from the seed (preparation, extraction, etc.) and the refining of crude oil are two separate and distinct operations, and no piece of their respective equipment

is interchangable from one operation to the other. As such they should be considered as two separate plants and given separate treatment for operation and accounting purposes. It must also be noted that in the case of groundnut processing the physical pressing (expellor operation) is often performed not just as as a step in oilseed preparation but as a final production procedure. The expellor cake derived from this operation is high in oil and should be solvent extracted. In such a case the expellor section should also be treated as a separate plant.

B. Project's Needs for Processing Facilities

The OGCP is a totally integrated project within the oilseed industry. It involves growers, processors, wholesalers, retailers, and finally reaches the ultimate consumer. Any and all profits gained as the commodity moves through the processing, marketing, and distribution channels is realized by the grower-member. Processing is a vital link in this producer-to-consumer chain; without it the project would not be in full control of the chain. The oilseed, until manufactured into its oil and protein fractions, is of little value to the consumer. The intent of the OGCP is not only to increase the return to the farmer, but also to reduce the price of oil to the consumer--an ambitious objective, but probably only obtainable in a totally integrated project.

One reason for the high price of vegetable oil paid by Indian consumers is the high cost of oilseed processing. It is known that the

cost of processing oilseed material in India is 2 to 3 times more expensive than in Western developed countries. India's higher costs are basically due to higher consumption rates of fuel, power, and solvent as well as under-utilization of installed capacity. It is an objective of the OGCP to reduce the cost of processing through increased operating efficiency and year-round processing based on assured supplies of raw material.

The question has been raised: If there exists under-utilization of existing installed capacity, why should the project acquire new or existing facilities? Why couldn't the project rent processing capacity on a "toll or custom" basis? In answering these queries it is necessary to point out that excess capacity does exist but most of it is not available to the project. It is reported that most of the oilseed crushing capacity of Gujarat State, for example, exists in tiny plants of less than 20 ton daily capacity. Of these, a large number have already gone out of business because their per-unit processing costs were too high to compete with larger plants; yet their no-longer-operational capacity is still registered on the books of the state government. Of those mini-plants still in business, it would be uneconomical for the project to use them for toll crushing precisely because their unit costs are so high, which would be reflected in higher toll charges. Furthermore, many of the still-operational plants are not conveniently located near the project's production areas, and the majority are not integrated--i.e., they are expellor operations

without co-located facilities for solvent extraction and crude oil refining, where profit opportunities are highest.

Realistically, the project represents a competitive threat to private sector processors, so if toll processing was considered it would have to be restricted to cooperative sector plants. Presently in Gujarat there are five integrated plants within the cooperative sector. Two of these are the recently-acquired OGCP plants at Bhavnagar and Jamnagar. The other three plants are Rajkot, a groundnut processing plant with a utilization rate of over 300 days per year; Chorward, an integrated cottonseed plant operating 250 days per year; and Anand Taluka, an integrated cottonseed and soybean processor that is operating over 300 days per year. So the only real capacity available to the project is represented by Bhavnagar and Jamnagar, and private sector interests fought a long and bitter battle to keep these facilities from take-over by the NDDB.

Listed below are the current rates for toll processing. These rates reflect a profit to the plant owner of about 15 percent; while not exorbitant, this rate is still extremely high and is due to inefficient plant operations. By outright ownership of its own plants, the project is able to return this profit to grower-members. It is also in a position to improve operating efficiency so as to shrink the currently prevailing margins, allowing oil to be sold to consumers at lower costs.

TABLE 2: CURRENT RATES FOR TOLL PROCESSING AND ESTIMATED PROFIT

Oilseed	Toll Charge	Profit Margin
Groundnut (expellor only)	Rs.100/ton of pods	Rs. 15/ton
Groundnut (expellor and solvent extraction)	Rs.165/ton of pods	Rs. 25/ton
Cottonseed (total process)	Rs.350/ton of seed	Rs. 53/ton
Soybean	Rs.400/ton of seed	Rs. 60/ton
Mustard, Rape, Sunflower	Not available	

C. Purchase of the Bhavnagar Plant

The purchase price of the Bhavnagar Vegetable Products (BVP) plant was 28.5 million rupees, for which the Project Authority (NDDB/OVOW) received the following items (in rated capacities): (1) a 100 ton per day Vanaspati plant, (2) a 150 ton per day DeSmett solvent extraction plant, (3) a 160 ton per day oil mill, (4) cottonseed preparation equipment (some never used) having a replacement cost of over 3 million rupees, and (5) a Lurgi Extractor with 100 ton per day capacity with a replacement cost of 4 million rupees and which could be put into operation with an additional expenditure of less than 2 million rupees. To replace the Vanaspati plant alone would cost an estimated 30 million rupees. Although all Bhavnagar equipment is used, it is all in good condition and does not require more than normal maintenence. In sum, considering the value of the property received for the price paid, the Team considers the BVP an outstanding acquisition by the project.

The capacities of the equipment listed above are "rated", i.e., those given by the Indian manufacturers of this equipment. However, it has been

the experience of the Team's oilseed processing specialist, who has worked in India with locally produced equipment during the last two years, that rated capacities can be increased substantially--sometimes even doubled--with only minor adjustments and repairs, and without incurring any safety hazard.* As these alterations are initiated over the coming months (some have already begun), the BVP plant will become a still far more valuable investment for the project.

The project has been criticized that in acquiring the Bhavnagar plant it was buying not only an unprofitable operation but one that was dirty and in disrepair. The latter criticism is completely unwarranted. Oilseed processing is a messy business to begin with. But in the opinion of the Team's processing specialist, the BVP plant is the cleanest oilseed processing facility he has seen in India (he has visited over 20 facilities, both public sector and private), and it is in fact cleaner than some plants in the United States; even so, there is still room for improvement.

As for the charge that the BVP is a losing proposition, the following facts should be considered. To begin with, BVP's previous owners turned the plant into the red deliberately: in a scheme to cheat their stockholders they manipulated inventories to decapitalize the operation, then declared bankrupcy. NDDB was awarded management of the plant by order of the High Court of Gujarat from 1977 until late 1980 when the plant's fi-

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* For the interested reader, extensive documentation of this point is available in John K. Hatch, "Evaluation Report of the NCDC/CLUSA Oilseeds Management O.P.G.", April 6, 1981, pp. 13-16.

nal sale was decreed. During this period the plant did incur losses but for very good reasons. Although BVP required extensive alterations to improve efficiency, NDDB was unwilling to invest in plant improvements because it was not yet sure of ownership. Furthermore, private interests competing for take-over of the plant are alleged to have instigated continuous labor unrest to discourage NDDB from its take-over plan. It took NDDB management nearly two years to court and finally obtain the support of the plant labor force under these circumstances, and in the process several cases of industrial sabotage had to be dealt with. From 1977 to 1979 the BVP lost 5 million rupees; in the 1979-80 processing year an additional 7.9 million rupees were lost. However, in the last six months, and particularly since ownership was awarded in December 1980, the BVP has made steady progress in changing its profit profile, as shown in Table 3 below:

TABLE 3: MONTHLY PROFIT OR LOSS OF B.V.P. SINCE SEPT.1980

Month	Amount (Rs.000)
September 1980	(1,050)
October	(583)
November	(75)
December	343
January	1,043
February	950
March	+ (as of 3/18/81)

D. Need for Additional New Facilities

The equipment used for oilseed processing in India is all indigenous equipment, manufactured in accordance with foreign designs that were available before 1963. Since then there have been virtually no modification of these designs. The equipment is not only inefficient but also very limited in size, i.e., rated capacity. Equipment available in other parts of the world operate at substantially lower consumption levels of fuel, power, and solvent. These items are as scarce and costly in India as elsewhere. It is the intent of the project to import some of the newer, more efficient equipment and thus provide an incentive to local machinery manufacturers to up-grade and modernize their products.

The growing of soybeans in India has made a good beginning; supplies of soybeans available for processing are growing rapidly. However, the facilities available to process soybeans are limited, and some of the required equipment is actually non-existent in India. Currently there is only one plant in the cooperative sector of India, Anand Taluka, that can process soybeans. In the private sector there are 2 or 3 plants that can or do process soybeans.

The largest plant manufactured indigenously is a rated 200 ton per day extraction plant. The cost of that 200 ton plant is approximately 80 percent of the cost of a 500 ton plant. Because of greater capacity, the fixed cost of production per ton of through-put in the 500 ton plant is about half that of the 200 ton plant.

In the area of protein from oilseeds for human consumption, there is no equipment available in India for manufacturing these commodities; hence this equipment will need to be imported. Further, the facilities required to manufacture protein for human consumption must have a more stringent control of sanitation, a requirement that would be almost impossible to manage in any of the plants currently in operation in India.

V. MARKETING

A. The Policy Environment

Just as the long-run trend in oilseed production has been stagnant, and subject to sharp fluctuations from year to year, the project has also been operating within an inhospitable macro-economic policy setting with a propensity for sudden shifts and high uncertainty.

Given low per capita vegetable oil consumption (estimated to be a mere 6-7 kilos per year), a high income elasticity of demand, coupled with higher than expected population growth, the GOI faces an unremitting expansion of demand for edible oils in the forseeable future. In the arena of macro-economic policy, the GOI can spur oilseed production by constructing a set of appropriate policies. It can increase public investment in the subsector. It can permit a greater volume of edible oil imports to meet the demand-supply gap. It can use price policy to dampen the growth of consumer demand. All three instruments are in opera-

tion today, but there is little evidence of policy coherence behind them.

The Sixth Economic Plan articulates a production strategy featuring an expansion of the area sown in oilseed crops under irrigation command, the introduction of improved seed, and intensified use of fertilizers and insecticides. The strategy for expanded production would be pursued through a package program in 100 districts of 14 states. Mentioned in the Plan are OGCP activities in groundnut production for the Saurashtra region of Gujarat as well as the soybean scheme in Madhya Pradesh. The Plan recognizes the moribund state of oilseed research and provides, among other things, for the National Research Center for Groundnuts at Junagadh. At an investment cost of 650 million rupees, the Plan's target is to increase oilseed production from a current base of about 10.2 million tons to 13 million tons by the end of the Plan period. This implies a rate of growth in production of 5 percent per annum or nearly three times the rate of average growth recorded during the period 1967-1979. There is no specific mention of the appropriate set of agricultural policies--for example, a price support program--which will be required to facilitate the production strategy.

Imports of edible oils have risen dramatically during the seventies to a current level in excess of one million tons per year; this compares to the net exportable surplus position registered in the decade of the sixties. Informed observers estimate that the edible oil import requirement may rise to a level of 1.7 to 2.0 million tons by 1984-85, which

would constitute the second largest claim on foreign exchange, provided domestic oilseed production do not increase rapidly or if price policy is not employed to dampen the growth of consumption. For nutritional reasons, the latter course is almost unthinkable. Some observers believe that the import situation has worsened since the GOI cancelled open general licenses in 1977 and moved responsibility for imports to the State Trading Corporation. Critics argue that the private trade--and NDDB for that matter--could import edible oils at a lower cost than STC with a resultant significant savings in foreign exchange and price relief to consumers.

India has ready export markets for oilseed meals, rice bran meal, and Hand Picked Selected (HPS) groundnuts. The GOI currently limits meal exports by quota. Since limiting meal exports reduces the utilization of solvent extraction technology, India is a double loser: first, solvent extraction permits a higher production of oils than traditional expellor technology; and second, restrictions on exports result in a serious loss of foreign exchange earnings which could be used to finance edible oil imports. Exporting rice bran meal would increase the supply of rice bran oil which, although inedible, reduces the industrial demand for other oils which are edible. Finally, the foreign exchange earned from exporting HPS groundnuts is about three times greater--ton for ton--than the cost of importing edible oils. Furthermore, the sorting of HPS groundnuts is highly labor-intensive (about 6 days per ton) and would increase employment of rural women in the production regions. While the Plan

establishes a target of 160,000 MT of HPS groundnut exports by 1984-5, there has been no relief as yet in the current 50,000 MT quota held by NAFED.

In the area of price policy, refined oil and Vanaspati prices have been rising steadily. This is thought to be a function of inadequate domestic production and lower-than-required imports rather than a deliberate policy action to constrain demand. At the production end the GOI has set support prices for oilseed crops which are believed to be below the common standard of 90 percent of the producers' estimated cost of production. Given the high susceptibility of oilseed crops to the vagaries of weather--combined with the existence of effective price support programs for other crops--farmers have little incentive to risk an investment in yield-increasing cash inputs in oilseed production. The fact that open market prices at harvest have been significantly higher than the minimum support price (for example, 3,000 rupees per MT of groundnut versus a support price of 2,060 rupees last October) appears to have lulled the GOI and others into thinking that a minimum support price is an academic matter and likely to remain so.

B. Creating Demand for Soybean Oil

The project has moved quickly to set up marketing channels for PL 480 Title II soybean oil. In the twelve months ending December 31, 1980 nearly 42,000 MT were sold, 67 percent through retail consumer sales and 33 percent through "market intervention". On a state basis, the oilseed growers federation of Madhya Pradesh sold 47 percent of

the supplies and Gujarat sold 53 percent.

The Madhya Pradesh Federation has worked especially hard to create consumer demand for soybean oil since a new market is crucial to the eventual success of emerging soybean production in the state. Madhya Pradesh currently accounts for 80 percent of all soybean area in India, or about 450,000 hectares, and the State Government's goal is for production to move up to 1.8 million hectares by 1984-85. In the year ending December 1980, the Madhya Predesh Federation sold 62 percent of the oil allocated by NDDB through a network of cooperatives and 1,500 retail outlets in 28 of the state's 45 districts. The success of this endeavor is evidenced by the fact that the Federation can no longer satisfy the newly-created consumer demand even though refined soybean oil sells for 12 rupees per kilo as compared to 8 rupees for palmoline.

During the Team's discussions at project headquarters in Anand, both the Chairman of the NDDB and the Managing Director of the Madhya Pradesh Federation raised their concern that the U.S. failure to proceed with all of the 1981 call forward (30,000 MT, of which only 10,000 has been authorized and shipped to date) has jeopardized the project's marketing strategy and embarrassed the NDDB and the state federations. They argued that if the federations are not perceived to be reliable suppliers of soybean oil, the project's brand names will not earn a good reputation among consumers, and the latter may be expected to revert to their old consumption preferences or shift to the cheaper palmoline. While there is some merit to these views, the fact remains that planned AID-financed PL480-Title II imports will not be sufficient to meet

already-established consumer demand for very much longer* To illustrate the point, it may be noted that of the 55,000 MTs delivered through December 1980, 50,000 MTs have been sold at a monthly average rate of 3,500 MT over the preceeding twelve months. The carry-over stocks from FY 1980 are now virtually exhausted. Looking to the end of Phase One (now defined as June 30, 1982) the total available supplies over the coming 15 months would at most be 62,500 MTs (i.e., 30,000 MTs for FY 1981 and 32,500 MTs for FY 1982). This would provide a monthly average supply of about 4,150 MTs through the end of Phase One. Beyond Phase One, only about 43,000 MTs are planned for the four years of Phase Two.

We conclude that the project's marketing plans can no longer rely exclusively on PL 480 Title II imports of soybean oil if the marketing channels are going to be expanded even further in Gujarat, Madhya Pradesh, and established in still other states. For the expansion to continue, the project will need to supplement donated oil with additional supplies procured commercially--domestically if necessary but preferably by importing soybean oil directly, an operation which the Team finds to be feasible and potentially quite profitable. A request for an NDDB import license for this purpose is currently pending approval by the GOI.

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* The U.S. failure to authorize the full 1981 call-forward was an unexpected action which left NDDB with shorter-than-planned supplies and thus left their marketing system more over-extended than otherwise would have been the case. Expressed differently, NDDB must now and for the forseeable future ration its donated soybean supplies far more strictly than had previously been expected. This has indeed proved an embarrassment to the project.

C. Market Information

The oilseed and edible oil markets are highly unstable in India for a variety of reasons. To begin with, there are eight significant oilseed crops but none is grown over a large area of the country. Crop production forcasting is still in a rudimentary state, and when combined with the vagaries of the weather--which can change bumper crop predictions to those of disaster within a few days or weeks--tends to create considerable uncertainty about the size of anticipated oilseed harvests. The lack of clarity and delayed announcement of GOI plans regarding import and export restrictions on edible oils, meals, and other products of the oilseed industry creates additional confusion which contributes to price instability. Price fluctuations vary considerably too from one region to another due to perceptions of available supplies between producer and non-producer regions. Internally, state-imposed restrictions on the "export" of vegetable oils to other states can cause prices in non-producer states to reach double and triple the price in producer states. Finally, taste preferences for different edible oils are quite varied throughout India, and while some oils are considered substitutes for others the cross-elesticities of demand are not well-understood.

Instability and uncertainty in the market only reinforce the attitude of farmers to minimize their risks. Groundnuts, for example, is traditionally grown mostly as an "orphan" crop; it is planted with few if any cash inputs, given sub-optimal cultivation, and if weather conditions are unfavorable the grower stands to lose very little--at most the

value of his (home-grown) seed and a modest amount of labor. However, in most years the grower stands to at least break even, and now and then he will hit "pot luck". While this constitutes rational behavior from the perspective of the farmer, it results in stagnating oilseed production for India as a whole and therefore the attitude of the producers must be changed.

The attitude will not change without substantial incentives which cover the increased risks of using yield-increasing cash inputs. The Team believes that a minimum support price program for OGCP grower-members could be an important NDDB strategy initiative to strengthen farmer response to the project. Under such a program a support price for, say, groundnuts would be announced before sowing. It would guarantee 90 percent of the average cost of production using an improved package of practices. A systematic survey of production costs (see pages 43-4) and possibly crop cuttings at harvest would help to improve the accuracy of cost estimates used in the program. Of course, the support price would only be paid when open-market prices fell below it. Under such a scheme the maximum loss to the project would be represented by the difference between the support price and the open-market price.* The scheme would be strictly limited to members of the project's village-level grower societies, and only to those members utilizing improved production practices.

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* Any loss incurred would be chargeable to the project's "Operational Losses" budget line item. Conceptually, growers of oilseeds have as much right to having their losses subsidized as do the oilseed processing plants seeking to establish profitable operations. Both face steep start-up costs in modernizing or improving their productivity.

The suggested price support scheme would serve to stabilize market signals (information) being transmitted to grower members. Although outside of the control of the project, a GOI announcement of its international trade quotas at the beginning of the fiscal year--before the sowing of the Kharif crop--would also serve to stabilize market price swings. NDDB has already begun to conduct research on consumer demand preferences, and this will improve the project's understanding of the substitutability of different edible oil products. Finally, and particularly if the project obtains approval for commercial imports of edible oil, NDDB/OVOW will need to plug-in to information flows concerning world market supply and demand trends. Detailed recommendations concerning international market data are presented in Appendix A: "Fundamentals of International Pricing--Fats and Oils."

D. Distribution and Marketing Systems

Marketing of edible oils in India has been predominantly in the hands of private traders for many decades. Only in the last few years has the GOI encouraged Fair Price Shops (FPS), a Public Distribution System (PDS), and utilized consumer cooperatives to take up edible oil retailing. The FPS and PDS have mostly confined themselves to selling edible oils supplied by the GOI at a fixed price. Now, under the Oilseed Growers Cooperative Project, a non-government controlled marketing system is to be created for the retail distribution of edible oils. This network will utilize and integrate in a single supply network a combination of private retailers, consumer cooperatives, fair price shops, the Public Distribution System, and additional outlets created by the project

as well. In establishing the new market distribution network, donated soybean oil marketed under the project label has proved useful in creating consumer and retailer acceptance of OGCP edible oil products in general.

During the initial months of marketing the donated oil (July-October 1979) the NDDB's own marketing group organized retail outlets (mostly cooperatives and private merchants) in the vecinity of Anand. The wholesale milk distribution network of the Gujarat Cooperative Milk Marketing Federation (GCMMF) was also utilized. The performance of these channels was quite good. Imported soybean oil was also distributed under "market intervention" wherein the Government of Gujarat appointed the Gujarat Cooperative Marketing Federation Ltd. (GUJCOMASOL) to act as its agent in the distribution of edible oils in Gujarat under the PDS. The performance of GUJCOMASOL was not very satisfactory because the quantity distributed by them was much less than committed (revised down twice). GUJCOMASOL was involved in the sale of donated oil for three months in 1979 (July-September) and six months (February-July) in 1980 but only distributed a nominal quantity to its various member cooperatives.

From November 1979 onwards the NDDB/OVOW gradually handed over the marketing of oil to the Gujarat Cooperative Oilseed Growers Federation (GCOGF), which has slowly developed its own network of wholesalers, stockists, and retailers. Since the GCOGF faced some handling problems with the 55 gallon drums (in which the oil was shipped from the U.S.)

the oil was repacked in 15.5 kilo tins, which is the traditional and most widely-accepted packaging for edible oils in Gujarat. At present the GCOGF is relying on the services of the Bhavnagar Vegetable Products Plant to assist in the marketing of its products. BVP has organized branch marketing offices in four cities, expects to open eight more by the end of 1981, and eventually plans to have one in every town with a minimum population of 100,000. The Federation sells donated oil through this growing network at a fixed retail price that is revised from time to time. The retail price is established after allowing for repackaging cost, transportation, storage, insurance, publicity, and sales margin.

During October 1979 the Madhya Pradesh Cooperative Oilseed Growers Federation (MPRTUSS) came into being and began selling donated soybean oil in that state through its own marketing channels at a fixed price. The Federation has established four branch sales offices (covering 35 districts) and utilizes some 1,500 wholesale and retail outlets. Continued expansion of the marketing network has been delayed until the Federation's operational plan has been approved by NDDB/OVOW, and after a determination is made of the quantities and schedule of PL 480 soybean oil shipments still awaited by the project.

E. Market Intervention--"Buffer-Stocking"

It is an article of faith in South Asia that agricultural markets have strong monopolistic tendencies. The OGCP in particular justifies many of its activities in terms of counteracting the collusive behavior of monopolists, traders, money-lenders, etc. While the analytical work that has been done fails to demonstrate that such collusive forces actually move and control the oilseed and edible oil markets, the Project Authority has nevertheless prepared plans to engage in market intervention or "buffer-stocking" operations to gain control of these markets by the oilseed cooperative federations.

The Project Authority has not requested to use funds generated by the sale of PL 480--Title II commodities for the purpose of buffer-stocking operations. However, to the extent that such operations will be financed by the "revolving fund" (i.e., the positive cash flow in the OVOW project account), it is necessary to understand the analytical justification for these operations, what will be involved, and the associated financial risks.

We have already suggested some of the variables which contribute to volatility in the oil markets. Briefly, these are: (1) a widening gap between consumer demand and available supplies; (2) erratic public sector international trade policies regarding edible oils and meals; (3) highly uncertain weather conditions; (4) unreliable crop forcasting; (5) local controls imposed by state governments; and (6) markets

differentiated by region, taste preference, and consumer purchasing power. Furthermore, it is necessary to mention that there are many hundreds of markets, large and small, in which domestic oilseeds and edible oil (including imported supplies) are sold. Finally, it is plausible to assume that in an economy characterized by commodity scarcity of many kinds, traders and affluent households do engage in speculative activities designed to earn profits and gain protection from shortages/ or glut. But speculative behavior should not be confused with the collusive behavior of "monopolists". And because of the very multiplicity of oilseed markets and the large number of factors which influence them, gaining collusive control over such markets would be extraordinarily difficult.

Interestingly enough, some of the econometric work conducted by NDDB lends strong support to our view that it is factors other than collusive behavior which move oilseed and edible oil markets. The Team was informed that NDDB's econometric model for these markets could account for 85 percent of the price variation in groundnut oil by the multiple regression of the following variables over time: (1) groundnut supplies; (2) price index of other substitutes, e.g., ghee and milk; (3) price of pulses; (4) the previous year's oilcake price; (5) world price of groundnut; (6) the previous year's availability of all other oils; and (7) real GNP. Moreover, if dummy variables were substituted for years of "political disturbance" the correlation coefficient would rise to .95.

In an early analytical work entitled "Restructuring Edible Oil and Oilseed Production and Marketing: Techno-Economic Feasibility", the NDDB postulated that if the project could control 15 percent of edible oil supplies it would be possible to control all oil prices within a broad price band defined by lower and upper price limits. The basic idea would be to buy oilseeds, presumably at harvest when open market prices dropped through the lower limit, and to sell edible oils when later in the year market prices might break through the upper limit. The study reconstructed the market for the period 1960-1976 to show that such a scheme would have been effective in most, but not all, years. The study also projects the edible oil markets for the period 1977-1985. As would be expected in such an exercise, the projections bear little resemblance to actual conditions in 1981. However, even accepting the assumption that 15 percent of supplies will control the markets, the implications for storage alone are staggering. In one NDDB projection, if consumption reached 3.7 million MTs by 1984-5, the project's 15 percent would require it to store and handle over the year about 560,000 MTs of oil. By way of contrast, a recent informal projection by the World Bank estimates edible oil consumption in India to reach 5.4 million MTs by 1985, which suggests as per the NDDB postulate that the project would need to control 800,000 MTs of oil.

The question considered by the Team was whether or not NDDB intends to proceed along the lines suggested by the Techno-Economic Study. After lengthy discussions with NDDB/OVOW staff we conclude that the project

intends to proceed cautiously and on a much smaller scale of operation. It would also appear that the NDDB has abandoned the idea of attempting to control prices within prescribed lower and upper limits. The Team very strongly supports this cautious and pragmatic approach to market intervention.

The key to intervening in the market on a larger scale will depend on a GOI decision which would permit the project to export HPS groundnuts and to employ the resultant foreign exchange (combined with other available funding) to finance imported edible oils on commercial terms. Assuming GOI approval of the required export and import licenses, the project anticipates raising 50 percent of the cost of imported edible oil with foreign exchange generated by HPS groundnut exports; the remaining 50 percent would be shared between the state federations and the project authority. The quantity of edible oils to be imported would probably be tied more closely to the availability of procurement financing than any predetermined import target considered necessary to dampen domestic prices. The project would utilize international oilseed brokerage expertise to identify the best moment to purchase supplies and from where. The forging of a collaborative procurement relationship with the U.S. agricultural cooperative movement--particularly soybean processors--is anticipated. OVOW reasons that the financial risk to the project is minimal as long as the prevailing open market prices of edible oils in India continue to exceed those of the world market by a factor of 1.5 to 2. The Assessment Team concurs in this view provided NDDB/OVOW keeps a close watch on the spread between Indian and world market prices, and

does not engage in full-scale buffer stocking operations designed to control the whole market within a fixed price band.

VI. BUDGET CONSIDERATIONS

In this section we address a number of issues which are perhaps of most immediate concern to both project donors and recipients, namely: How much should the project spend, on what, and how soon? The Assessment Team did not feel qualified to answer these questions in a definitive way. The estimation of precise budgets per line item--particularly when projected over five years into the future--is a task which is most appropriately left to the discretion and experience of NDDB/CVOW staff and CLUSA monitors. The same is true regarding the exact amounts of tonnage of donated oil to be specified in future call-forwards, and their scheduling. At best, the Team felt it was qualified to address only the broader parameters of budgeting and expenditure decisions such as the rationale for specific line items, whether and how they contribute to project objectives, whether they merit support, and whether current budget estimates--in broad magnitudes--may be considered reasonable predictions of resource requirements.

A. Initial Clarifying Assumptions

At this point it is appropriate to make explicit a number of the Team's assumptions regarding the project budget. First, based on our technical assessments of the project as described elsewhere, we believe

there is no question but that the project is both appropriate and feasible as a development undertaking; as such it merits a continuation of support through donated commodities under the PL 480 Title II Program. Second, through the Transfer Authorization (TA) signed December 28, 1978, AID has committed itself to supply the NDDB, through CLUSA, the quantity of 117,500 tons of refined vegetable oil through Stage One of the project; the Team believes that the OGCP does need and can fully and constructively use the total amount of gifted oil specified in the TA. Third, the Team's assessment report was made necessary by the suspension of oil shipments in December 1980, and we believe this report should be sufficient to justify the immediate resumption of these shipments and their continuation until the 117,500 MT committment has been met. Nonetheless, we assume it is clear that our efforts do not replace the CLUSA-NDDB-USAID-GOI evaluation which was scheduled in the Transfer Authorization to be completed in mid-1981 at the conclusion of Stage One. That evaluation has now been rescheduled for June 1982. Only at that time will a determination be made as to whether project performance is sufficiently on-track to justify additional shipments of donated oil up to the amount of 160,000 tons specified in the original project proposal. For this reason our concern with budget estimates is primarily focused on the immediate resource requirements of the project through mid-1982.

B. Original Seven Line Items

The original project proposal listed seven line items to be financed by currency generations (in rupees) resulting from the sale in India of donated PL 480 vegetable oil. The value of that oil was pegged at 6,000 rupees per ton and was to be deposited to a "special account". When actual currency generations far surpassed the 6,000 rupee level, USAID insisted that NDDB/OVOW establish a second special account for the deposit of these surplus funds, and five additional line items were established to account for their use.

Presented below is a listing of the budget estimates for the original seven line items. The left-hand column gives the original estimated budget, by line item, proposed in 1977. The middle column gives the revised budget estimates which were calculated by NDDB/OVOW and CLUSA staff in October 1980. The right-hand column gives current NDDB/OVOW estimates (as of late March 1981) of what it will spend for each line item through Stage One, i.e., from project inception through June 1982. Since the referenced line items were part of the original project approved by AID and USAID/India, there is no need at this point to describe each in detail nor justify its contribution to the project. However, the budget estimates themselves--particularly the October revision and the more recent projection of expenditures through Stage One--require some explanation and analysis.

BUDGET ESTIMATES OF THE OILSEED GROWERS COOPERATIVE PROJECT
(in millions of Rupees)

Line Item Identification	Original Estimate (1977)	Revised Estimate (10/80)	Expenditures to 6/82
FIRST SPECIAL ACCOUNT			
1.1 Processing	596.75	900.00	191.64
1.2 Operations Research	18.50	20.00	1.61
1.3 Market Research/Training	22.95	25.00	3.16
1.4 Production Enhancement	439.74	450.00	23.92
1.5 Products and Process Dev.	11.70	12.00	1.51
1.6 Manpower Development	30.00	33.00	0.25
1.7 Proj. Authority, Mgmt.	102.87	120.00	25.59
TOTALS	1,222.51	1,560.00	247.68

With the exception of the Processing line item, most of the budget revisions are relatively minor and represent little more than a rounding off to higher even numbers. The very significant increase of 303 million rupees in the Processing account reflects the incorporation of additional financing for decentralized storage facilities, which was one of the central recommendations of the Operations Research study conducted by CLUSA-contracted short-term consultants in late 1980. The Assessment Team (see pages 44-6) strongly endorses the need for such storage as well as the budget increases to finance its construction.

With regard to projected expenditures through Stage One (June 1982) it is apparent that the project is spending well below the rate required to meet its seven-year budget targets (as revised). Assuming an even

distribution of average expenditure from one year to the next, we would expect the project to have spent about two-sevenths of its total budget by mid 1982, or about 446 million rupees. Presently anticipated expenditures are only 247.7 million, or about 55 percent of the above figure. In percentage terms, the line items closest to an acceptable rate of expenditure are Processing and Project Authority Management--both 75 percent of what would be necessary to meet a linear distribution of project resources. The least acceptable rates of expenditure are represented by Manpower Development and Production Enhancement, which would register a mere 3 percent and 18 percent respectively of the expenditure rates suggested by a linear distribution of resources.

Linking current expenditures to targets established by a seven-year projection, however, is of dubious value because the project has no assurance of continued commodity support under PL 480--Title II after the end of the second year or end of Phase One. Realistically, the project can not spend any more or any faster than its ability to convert donated oil into local currency. Because of the recent suspension of call-forwards for FY 1981--and because it takes a full six months from the time commodities are shipped from the U.S. until they are converted into rupees for project use--it is now impossible that the project will capitalize the full 117,500 MTs of committed donated oil by the June 1982. In any event, taking the pessimistic assumption that the project will receive no more than 117,500 tons over the entire project life, and calculating the currency available to the first special account from the sale of those commodities(at 6,000 rupees per

ton), this gives a total of 705 million rupees. Now then, if this sum is pro-rated on an equal basis over the seven-year project period, by the end of Phase One we would expect two-sevenths of it to be spent, or 201 million rupees. This compares to 248 million rupees presently projected by NDDB/OVOW. It could therefore be argued that the Project Authority has, in fact, been acting with the utmost financial responsibility: it has budgeted its expenditures utilizing the most conservative assumption of anticipated project income.

However, this argument should in no way distract attention from the fact that--programatically--the project is far below acceptable spending levels in two categories: Manpower Development and Production Enhancement. The Team strongly urges the NDDB/OVOW to rebudget both line items, attempting to increase expenditures through Phase One from 24 million to no less than 75 million for Production Enhancement, and seeking at least a twenty-fold expansion of its budget projection for Manpower Development to help finance an immediate and massive recruitment/training of leadership for the mobile team expansion drive that must be initiated at the earliest possible moment.

C. Five New Line Items

All local currency generations from the sale of donated vegetable oil that are in excess of 6,000 rupees per ton are now being deposited in a second "Special Account" . This account is expected to finance five new line items, each of which will be described separately in the following pages. But first it is appropriate to provide an overview of

the budget estimates for the second special account, just as we did for the first special account. These are presented below:

BUDGET ESTIMATES OF THE OILSEED GROWERS COOPERATIVE PROJECT
(in Millions of Rupees)

Line Item Identification	7-Year Estimate as of 10/80	Expenditures through 6/82
SECOND SPECIAL ACCOUNT		
2.1 Federation Share Capital	83.00	48.00
2.2 Procurement Support	210.00	100.00
2.3 Management Training	3.00	0.75
2.4 Operational Losses	50.00	32.82
2.5 Cooperative Development	3.00	.52
TOTALS	349.00	182.09

Using the pessimistic assumption that the project can only count on 117,500 MTs, if the 7-year budget is divided by that tonnage we get an average value of 2,970 rupees per ton. This can be considered a somewhat conservative estimate of the surplus local currency to be generated above the 6,000 rupees-per-ton pegged rate considering that the donated oil is currently selling in India for over 10,000 rupees, and the price trend continues to rise. The estimate of expenditures through mid-1982 are almost double the rate which would obtain if resources were evenly distributed over the seven-year period. However, both share capital investments in the federations as well as operational losses are up-front expenditures which would be expected to occur fairly early in the project. The same can be expected of procurement support expenditures, which rep-

resent loans to the newly-established federations. Overall, the Team considers the budgeted amounts to be appropriate; they are, in fact, based on a rather conservative estimate of oil prices so that, if anything, significant increases in available resources may result to provide the project with a substantial "cushion" or margin of error in case the expenditure requirements prove unrealistically low.

D. Federation Share Capital

The purpose of this line item is to provide state oilseed growers cooperative federations (the project's eventual implementation agencies) with financial support for meeting their start-up costs. NDDB investments in federation share capital will be used by these entities to hire staff, rent or build office headquarters, purchase vehicles, hire consultant services for specific studies, and support operating capital requirements. Share capital investments will reach a minimum of 51 percent of each federation's authorized share capital so as to give NDDB/OVOW effective control over federation decision-making in the short- and medium-term. As these state federations acquire adequate expertise and financial solvency, they will be permitted to buy up NDDB shares on a gradual basis and eventually achieve effective control over their operations.

Under Indian cooperative legislation, co-op federations are permitted to borrow from the cooperative banking sector up to twelve times the value of their paid-up shares. Thus NDDB/OVOW investments in federation share capital will greatly assist these entities to borrow on a

large scale to finance their commodity procurement schemes and other investments. If cooperative bank financing is insufficient, the federations will undoubtedly use some of their NDDB-generated share capital to meet "margin money" requirements on a 40/60 basis from commercial banks.

The Project Authority has estimated a budget allocation of 48 million rupees for share capital investments through June 1982. This amount will cover at least five state federations, including three already established in Gujarat, Madhya Pradesh, and Tamil Nadu. The Team is satisfied that the rationale and budget for NDDB/OVOW share capital investments in state federations are reasonable.

E. Procurement Support

As originally conceived, this line item was established to assist state federations in acquiring sufficient loan capital for oilseed procurement operations by financing their loan interest payments. In effect, this would allow a federation to operate as if all procurements were financed from its own rather than borrowed resources--at least for an initial period of five years until the institution was sufficiently experienced and capitalized. The line item itself was justified by NDDB planners with the argument that federations must compete in their commodity procurement operations with large traders and processors who have access to large supplies of "black money" obtained through illegal operations and available to them on an interest-free basis.

The Team was not convinced by this argument. We consider that interest rate charges on borrowings are a legitimate cost of doing business and should be borne within the normal operating margins of cooperative processors. The more serious problem, it seems to us, is not the differential cost of using procurement capital but rather the sufficient availability of capital itself--at any price--to purchase oportunely the supplies of oilseeds needed by the project to keep its crushing, extraction, and refining plants operating at full capacity throughout the year.

In this regard the Team feels that procurement support funds should be employed for a wider variety of support activities. Specifically, these resources could be used to provide federations with emergency margin money. This account should be used as well for "bridge" financing operations, say to tide-over a federation until the arrival of an operating capital loan which has been delayed in the banking system's red tape. It should be used, if necessary, to obtain on 30-60 day credit large stocks of productive inputs like seed, fertilizer, pesticides, and tools which are desperately needed by grower members(but not readily available through existing village cooperative suppliers) for undertaking yield enhancement investments recommended by the project. The number of possible contingency uses of procurement support funds on a short-term basis are many. However, their use for long-term loan support to meet interest rate costs of procurement is, in the Team's view, both unnecessary and inappropriate.

F. Operational Losses

Unlike the first two line items described above, which represent capital loaned to federations that must be repaid sooner or later, the Operational Losses line item contains resources that are not to be loaned to anyone. This account is to be used exclusively by the NDDB/OVOW to finance losses incurred by this institution in conducting operations which benefit the project. Indeed, such operations may be indispensable to project success, but they may be too risky or too large to be borne by newly established federations in their initial stages of growth. Expressed differently. Operational Losses are intended to cover certain inevitable start-up costs of the project. The primary example of operational losses incurred to date is that of the Bhavnagar Vegetable Products Plant acquired by the NDDB in 1978 and run at a loss for the following two years.

Potentially, the Bhavnagar plant represents an exceptionally good investment for the NDDB. As described elsewhere (see pages 53-55) it will provide the project with the largest groundnut processing facility in Gujarat and was acquired at a price of less than one half of what it would cost to build today. Nonetheless, Bhavnagar's operating losses reached 49.9 million rupees accumulated from 1977 through 1980. But since the beginning of the 1980-81 processing year the plant has shown a profit in five of the last nine months, has turned a profit every month since December 1980, and has cut its cummulative losses to about 12.5 million rupees in less than a year. Any processing plant manager will insist that

it is perfectly normal for newly-acquired manufacturing facilities to be operated at a loss for their first 2-3 years, and the BVP fits this pattern. But NDDB is a non-profit trust and is unable to adsorb such losses from its own assets. For this reason an account for covering these losses--a "sinking fund"--is required by the project.

A second possible use for the Operational Losses account was extensively discussed by the Team, namely: to finance possible losses incurred in supporting an oilseeds price support scheme for grower-members. The scheme would essentially set guaranteed prices for oilseeds in advance of the sowing season (see pages 63-65), and any difference between these and lower prevailing open market prices for any given oilseed crop would be met out of the Operational Losses account.

Such a scheme for price support to oilseed growers (co-op members only) is not presently managed by NDDB nor is it planned. Neither did the Team discuss with NDDB the pros and cons of a support scheme financed out of Operational Losses. In fact, the members of the Assessment Team were divided as to the feasibility of the scheme. We only mention it at this time because the absence of a realistic oilseeds price support program in India is considered by some observers as an important factor contributing to the stagnation of production in this sector. The Team unanimously endorses the suggestion that NDDB investigate possibilities for implementing a price support program for the project's grower-members.

G. Management Training

Management training by NDDB is conducted through its Institute of Rural Management (IRMA). The idea for IRMA was born five years ago and developed under a grant from the Ford Foundation. The institute opened its doors a year ago. IRMA OFFERS A two-year program which features one year of theory, half a year of fieldwork (in conjunction with mobile teams), and a final six months of classroom training. The institute trains college graduates for positions as processing plant managers, area office directors, assistant directors of NDDB support divisions serving different projects, and other positions. Last year 15,000 applications for admission were received, of which 4,000 candidates were interviewed and 70 students finally selected. Of the current batch of 50 students now beginning their second year, 10 are to be assigned to the Oilseed Growers Cooperative Project. Each will be required to serve a minimum of three years in the project following graduation.

NDDB has budgeted 750,000 rupees for OGCP management training activities through June 1982. At present NDDB estimates its costs per student at 25,000 rupees per student for a two-year program. This being the case, the present expenditure projection provides resources sufficient to train 30 rural managers, enough to finance a triple expansion of the ten students initially ear-marked for the project. This increase is welcome and comes none too soon.

H. Cooperative Development

The final new line item to be financed by resources deposited to the second special account involves the execution of special studies to research opportunities for expanding the Anand Pattern Cooperative model to other commodity sectors. At present NDDB has undertaken the organization of special study groups whose assignments are to study jute, fisheries, cotton, and fruits and vegetables. Each group consists of 2-3 professionals and utilizes a research budget of about 16,000 rupees to pay consultants fees, conduct surveys, pay field travel expenses, attend conferences and symposia, etc. The budget allocated for these activities would appear overly lean for their efficient implementation. However, since such studies are not central to OGCP implementation it would appear the modest level of present expenditure is appropriate and need not be expanded. Besides, most of the studies in question have been requested by the GOI and therefore are suitable candidates for supplemental research financing from central government sources.

I. The Need for Budgetary Flexibility

The planning environment of the OGCP is extremely dynamic at this time. While NDDB/OVOW is presently the Project Authority, implementation responsibility is being increasingly transferred to the state federations. Each state federation is conducting its own Operations Research study, each has its own oilseed procurement and vegetable oil marketing strategies, each confronts widely different grower conditions at the village level, each will have different training or research facilities

at its disposal, and each--sooner or later--will evolve considerably different performance targets. Furthermore, as more mobile teams are deployed, more village societies organized, and more farmer-leaders are trained, the project's implementation responsibilities will be progressively decentralized lower and lower toward the grower level. To complicate planning even further, the OGCP has no assurance that additional commodities beyond the 117,500 tons will be forthcoming for Stage Two. Other donors (particularly Canada) have chosen to be non-commital as well. And finally, the project still does not have GOI authorization to engage in commercial import of edible oils, an operation which is regarded as a decidedly good risk for NDDB and likely to be an extremely important source of additional income for the project. Given such uncertainty, the project's budget estimates must be expected to undergo considerable modification over time. It is for this reason that the Assessment Team wishes to place on the record its special plea for allowing NDDB the widest possible flexibility in managing the financial operations of the project.

The creation of the second special account is now an established fact; the Project Authority is now carefully documenting all deposits to and disbursements from that account. But the budget shares allocated to the separate line items financed by this account must, for the sake of smooth project implementation, be considered highly variable. The Cooperative Development and Management Training line items may be considered the categories least likely to change. However, Share Capital

Investment, Procurement Support, and Operational Losses should be considered quite fluid; collectively they should comprise a single reservoir of financing available, without budget restriction, to any of the three approved expenditure accounts.

J. Reflows

The Assessment Team was asked by CLUSA and USAID to make suggestions regarding the most appropriate procedures for the deposit and use of reflows. The Team was reluctant to address the issue because it has so much to do with audit and other regulations about which Team members have little in depth expertise. However, as the Team considered the matter it was decided that our suggestions--following not regulations but simple logic and common sense--would do no harm.

First, an attempt to define the issue. In the recent AID Auditor General Report on the OGCP (February 1981) the following recommendation appears: "The Director of USAID/India should, in conjunction with CLUSA/NDDB, establish procedures for the deposit and use of proceeds realized from project loan reflows and interest thereon." We deduce from this statement there is no U.S. statutory requirement under PL 480--Title II which specifically requires so-called "reflows and interest thereon" to be deposited to an account subject to U.S. Government audit. If this is so, it follows that the principal concern of all parties should be that project objectives are achieved rather than which party has future access to accounting records.

Second, the Assessment Team reasons that it is only necessary to account for the expenditure of funds for agreed budgeted purposes one time, and that such transactions should be subject to USG audit. The corollary to this thought is that if reflows of either principal or interest from agreed and approved expenditures must be redeposited in an account subject to USG audit, then the way would be clear for a nearly infinite cycling and recycling of funds and continuous audit over a period of time extending beyond the project's life. We would regard such an arrangement as redundant because it creates opportunities for audit over-kill with no obvious benefit to the project.

Of course, if audit access is to be limited there must be a way to assure that all local currency proceeds--including reflows and interest--will be used for project purposes. The Assessment Team believes that procedures to guarantee this need are already in place. To begin with, it has been agreed by all parties that the sales proceeds equal to 6,000 rupees per ton of donated oil will be deposited to the First Special Account, and that any sales proceeds in excess of this amount --plus earnings from the sale of containers--will be deposited in the Second Special Account. Since both these accounts are subject to USG audit there is an assurance that the first expenditures will be used for agreed project purposes.

Furthermore, NDDB has proposed that all "Indian source funds" be deposited in the OVOW Project Account. These funds would include: (1) repayment of loans for processing facilities, (2) repurchase of NDDB-

held federation share capital, (3) share capital dividends paid to the NDDB by the federations, (4) interest income to NDDB for procurement support loans and/or temporary time deposits, and (5) profits from the sale of commercially procurred oils. There remains the question of how Indian source funds would be spent. First, we argue that items (3), (4), and (5) truly are Indian source funds. Second, and more importantly, the definition of the OVOW Project Account is: those funds necessary to carry out the project as originally proposed by the NDDB and approved by the Government of India. The OVOW account can, by definition, only be used for the purposes stated in the NDDB project proposal. In describing the OVOW Account in this way, we are distinguishing between it and the NDDB General Account, the latter of which is used to channel funds for activities other than the oilseed project. Therefore, if the First and Second Special Accounts will include all funds generated from the sale of PL 480 Title II commodities, and if all other resources--including reflows and interest and Indian source contributions--are channelled through the OVOW Account, there exists a reasonable assurance that all funds will be used for project purposes.

The Assessment Team has examined the argument that it is necessary to deposit all reflows and interest into the special accounts because these resources are necessary to achieve the objectives of the project. This does not appear to be the case. As presently estimated by NDDB and CLUSA (see pages 75 and 78), the total project cost is 1,909 million rupees. In their tentative Revised Operational Plan (completed in March 1981), NDDB/CLUSA estimate project income to be 2,068 million rupees,

which leaves an estimated surplus at the end of the project of 159 million rupees. This surplus is far larger than the sum of estimated income from loan repayments from processing plants (Rs. 51 million) as well as the repurchase of share capital (Rs. 10 million), which represent the two largest uses of project resources. Both these reflows depend on the very tenuous assumption that repayments to NDDB by the federations will begin by the sixth year of the project. The estimated surplus is also larger than the sum of the above plus all expected dividends and interest (Rs. 150 million). Hence, even if the project failed to receive any reflows, it would still be able to fully finance all its proposed activities out of its anticipated surplus.

The projected surplus, however, is based on the assumption that over 60 percent of total anticipated project income by the end of the project's seventh year is to be generated from profits arising from "commercially procured oils", which is strictly an Indian source of funds. As we have described elsewhere in this report, commercial procurement of oils is dependent on a GOI license to import edible oils. It has never been proposed that profits from commercially-procurred oils be deposited into one of the special accounts. We conclude therefore that all parties are convinced these resources would be channelled through the OVOW Project Account for agreed purposes.

VII. INSTITUTIONAL RELATIONSHIPS

At last we come to the most difficult section of all in this report. It involves the delicate subject of institutional relationships between the principal parties to the project--NDDB, CLUSA, and USAID. From very early in our assignment it was obvious to the Team that both the formal and informal relationships between these parties have become strained by a number of disagreeable events which have generated an atmosphere more of confrontation than cooperation among the three institutions. Complicating the matter is the fact that all three institutions are of sharply different size and weight, which makes present dealings with each other appear to be contests between unequal adversaries.

The events which led to the existing frictions are a latter of public record and need not be summarized in great detail here. Suffice it to say they included in the short space of the last year: (1) a revision of the project's terms of reference, as originally defined, requiring the NDDB to deposit all local currency generated from the sale of donated commodities into special accounts; (2) the intensification of USAID inquiries to CLUSA regarding clarification of project implementation arrangements, together with a demand for increasingly detailed project monitoring reports; and (3) the publication of a U.S. Government audit report on the project which one-sidely reached only negative findings, most of which were considered by NDDB and CLUSA as unfair distortions of the project reality.

Each of the parties continues to assert its own real or imagined set of grievances against the others. NDDB complains that its operating flexibility has been jeopardized by the encroachment of USAID regulations and supervisory needs, which threaten as well its administrative autonomy as a private voluntary organization. CLUSA complains that USAID's profile in project monitorship has become altogether too visable; it asserts that the Agency's requests for procedural clarifications, project performance data, project review meetings, and other time-consuming activities or paperwork have become so overwhelming as to neutralize CLUSA's ability to effectively monitor the project. For its part, USAID complains that CLUSA is often uncooperative and even secretive, that its Representative is too defensive to participate in constructive dialogue concerning project deficiencies, and that CLUSA's monitoring capability is questionable.

There is undoubtedly some legitimacy to the perspectives of each party. Unfortunately, a lot of energy has been spent and valuable time wasted in the defense of these perspectives. The Team has no interest in assessing the relative validity of such institutional viewpoints. However, we do believe very strongly that it is in the best interest of the project for the principals to come to a common understanding of the legitimate needs of the other institutions to which they are inextricably bound in a common enterprise. Accordingly, the Assessment Team offers the following commentary and a set of suggestions for reaching a more productive set of operating relationships between one another.

First, many of the misunderstandings seem to arise from a fairly sterile debate about whether--at the extremes--the project is either a "private aid" undertaking between an American private voluntary organization assisting an Indian PVO, or whether by virtue of the project's scale, complexity, and cost it more nearly resembles a typical bi-lateral undertaking between the U.S. Government and a host-government development agency. The truth of the matter is somewhere between these extremes. We see important elements of independence of independence and flexibility that are characteristic of PVO relationships not narrowly encumbered by government rules and regulations. We also see the project has the formal approval of two soverign governments and that AID is the principal source of financing. In sum, the project is a hybrid model and should be recognized as such by all its institutional participants.

Second, the Assessment Team urges AID's and USAID's cooperation in protecting and preserving the qualities of independence, flexibility, and leadership which have proven crucial to NDDB's demonstrated record of success to date. While such a declaration of the need for independence is easily written, it will take a great act of will for those not directly responsible for project execution or monitorship to resist meddling at the periphery. Nevertheless, institutional discipline is required.

Third, since AID is in fact the principal financier of the project --both through PL 480 commodity assistance and grant financing to CLUSA for related technical assistance activities--both NDDB and CLUSA must

recognize that there are legitimate financial, legal, and substantive requirements for which USAID/India remains responsible. In the past it appears problems have arisen because both NDDB and CLUSA claim that while such requirements may be legitimate, they seem to change over time.

Fourth, the Team suggests that USAID/India prepare one written statement wherein the Mission ennumerates all of the legal, financial, commodity utilization, activity monitorship, beneficiary impact, and other requirements for information which it will require of CLUSA on a quarterly or other basis to meet the Mission's statutory and policy responsibilities. This statement should be provided to and discussed with CLUSA as well as NDDB.

Fifth, under the above arrangement, CLUSA would be obliged to provide the information required by USAID based upon a continuing stream of data and information supplied by NDDB to CLUSA and such other monitoring reports prepared by CLUSA staff which may be required. CLUSA should always seek USAID guidance where a definition of the meaning of an AID regulation is required.

Sixth, CLUSA should also guard against engaging in unilateral negotiations with NDDB when the subject of negotiation is beyond CLUSA's authority. By the same token, OVOW should be careful to obtain official clearance for all major project documents and operating agreements from the Chairman of the NDDB.

Seventh, the Team feels that USAID does not need to physically verify for itself--through frequent visits to the project regions--that OGCP performance is indeed accurately reported by NDDB/CLUSA, or that satisfactory progress toward project objectives is being made. We feel that the three parties should formally meet only once a year for a comprehensive review of project performance. In place of more frequent reviews, CLUSA would be expected to meet periodically with the USAID/OGCP Project Committee--quarterly, or more frequently if necessary--to present a full briefing on the status of the project. Meanwhile, it is expected that NDDB would continue to offer its traditional hospitality to USAID and AID officials who from time to time care to make an informal visit to the project or become acquainted with other NDDB activities. Such information contacts are important to sustaining a donor's interest and support.

Eighth, in the event that the above procedures are not accepted or do not prove effective, and if no others can be devised, the ultimate recourse is for either AID or NDDB to withdraw from the project. Furthermore, if either AID or NDDB is not satisfied with the way in which CLUSA --as the liaison and project monitor--is representing their interests, either party should seek the appropriate change in CLUSA management.

A P P E N D I C E S

APPENDIX A

FUNDAMENTALS OF INTERNATIONAL PRICING - FATS AND OILS

Methodology for ascertaining next direction of price change

In a comparatively short span of time, soybeans, largely resulting from U.S. and Brazilian productivity, has become by far the leading supplier of the World's protein and edible oil requirements:

Oilseed World Production (million metric tons)

	1981-82 Estimate Low	1981-82 Estimate High	1980-81 p	1979-80	1978-79
Soybeans	83.5	90.7	82.0	93.9	78.1
Cottonseed	25.3	27.6	25.7	25.5	23.6
Groundnut Shelled	11.2	11.5	11.0	11.4	12.0
Sunflowerseed	13.6	15.1	13.1	15.7	13.1
Rapeseed	19.2	11.1	11.1	10.2	10.7
Other	11.5	12.0	11.8	11.6	11.1
Total	155.3	168.0	154.6	168.2	148.6
Soybeans	71.8	77.3	72.6	74.3	70.5

Source: Oil World, Hamburg, March 20, 1981

The soybean is really a meal-seed (misnamed oilseed) since 80 percent of it is a high protein, high quality oilmeal, and only 18 percent on average is the edible oil component. Nevertheless, soyoil is now the top producer of the World's edible oils, and as such is a key oil which exercises price leadership in the World's fat and oil economy. All edible oils follow a common price direction, each oil's price deviating from its normal relationship one to another based on its individual supply-demand situation.

Following is a brief analysis of the factors which usually affect the direction of soybean oil prices:

Background

The basic concept of soybean production is that they will be grown primarily for their high meal content which in combination with feed grains and other trace ingredients will provide the compound feed for the efficient production of meat, milk and eggs required essentially by the World's affluent Western countries. Since the edible oil requirements of these countries have been largely satisfied at a very high (possibly saturation) level, it is theorized that the surplus oil resulting from the increasing World's protein requirements (The U.S.S.R. and China are only now recognizing their shortage) will be exported to the developing countries where per capita edible oil consumption is low, but

increasing at a rapid rate. Some of the developing countries, notably India, in an effort to promote self-sufficiency and conserve scarce foreign exchange, have resisted the concept of importing edible oils. But population explosion plus the realization that the World's surplus oils can be bought at a fraction of the Indian cost of production, has changed critical attitudes (some say temporarily). Since 1976-77 India has imported more than 1.1 million tons of edible oils per year. Up to the present, the basic theory as compared with actual practice has worked remarkably well. In part this is due to a yearly increase in World fat and oil requirements of about 1.2 million metric tons which ties in fairly well with the increased oil generated from new demand for meal plus the yearly increase in palm oil production.

Oilseed and oilseed products price analysis

Once the principle of estimating World oil production as a residual of World meal demand becomes firmly established, the rest of the price exercise falls into place quite logically along the following lines:

1. Estimate World oilseed production, initially by planted acreage; secondarily by studying weather in the growing seasons to obtain possible deviations from normal yields; and finally, estimate final production including crop quality and storeability.

2. Estimate North American and/Western European oilseed meal demand by the animal unit measurement method verified by trend analysis. Fine tune this by same exercise in major consuming countries.
3. Estimate Eastern / European meal requirements plus individual studies of the U.S.S.R. and China. Is the demand viable or must import demand be modified to correspond with current or anticipated political developments leading to restraints on trade, possible embargos, etc.
4. From total World meal requirements, estimate World crush by countries and strike a supply-demand balance for principal oilseeds with the primary purpose of ascertaining whether carryout oilseed stocks will be adequate or burdonsome. Estimate probable price range of oilseeds basis demand developments and expected change in ending stocks, etc.
5. Considering oilseed price, estimate meal price basis supply-demand using relative pricing yardsticks against expected feed grain prices. Modify meal price by special supply-demand situations developing in certain consumption areas.
6. Based on meal demand and the resultant oilseed crush requirement, estimate World oil production, demand, and what affect these data will have on ending stocks. Adjust demand data by realistic demand appraisals of key import countries, and whether and by how much these needs may vary from previous year imports. The huge requirements of India, possibly

modified by foreign exchange availability is a good example of the never-ending analysis required in this critical area. Basis oil production from meal dominated crush, oil demand and ending stock change, estimate oil price and trend over next 90 to 120 days.

7. Using prices developed above on all three legs (oilseed, meal and oil) estimate processing margin in key areas, and whether it gives adequate incentive to the processing industry to produce enough products to fill required demand.
8. What is the expected trend/of all major commodities? Are oilseeds likely to go with or against the overall trend. Adjust price outlook to correspond, also taking a hard look at inflation prospects for the year ahead.

The above is a simplistic explanation of an extremely complex price problem. Oil World, Hamburg, a widely known fat and oil and oilseed statistical organization with a full staff of economist, analyst and language translators has just completed a reorganization of their entire computer department (including the installation of a huge new computer) simply because the system they installed just a few years ago has already become too small to handle the staggering load of World statistics they need each day.

One way to obtain World pricing expertise at least cost

There are several related issues in development of price forecasting capability that have a bearing on N.D.D.B., and especially

that part of the program that they call "Buffer Stock" operations, but which we prefer to call "Commercial Purchase of Edible Oils". The latter term, we think is more descriptive of the contemplated activity. These issues are:

1. The economic and price forecasting capability of N.D.D.B. staff is very high as it pertains to India and its agricultural problems. One would have to travel a long way to find another staff so dedicated and eminently qualified to carry forward this project to a successful conclusion.
2. But there are areas of specialized knowledge where even an expert staff will get bogged down, and in the process spend an inordinate amount of time on just one phase of the project; International fat and oils pricing is one of those areas.
3. It is our feeling that this World supply-demand data together with a continuing flow of expert market judgements is available, and can be purchased at reasonable cost.
4. One of the experts in this field has already been mentioned - Ista Mielke Co., publishers of Oil World of Hamburg, West Germany. Another highly qualified service is Sparks Commodities, Inc. headed by Caroll Brunthaver, ex-Assistant Secretary of Agriculture of the United States. There are others.

5. Some of the U.S. commodity brokers publish excellent weekly reports which can be obtained at little cost. Some of the best are:

   Shearson, Loeb Rhoades, Inc., New York City

   Paine Webber Jackson & Curtis, Chicago, Ill.

   Merrill Lynch Pierce Fenner & Smith, Chicago, Ill.

   Clayton Brokerage Co., St. Louis, Mo.

   One of Clayton's Washington, D.C. brokers is Glenn Pogeler, ex-President Soybean Council of America. He has traveled extensively. Very knowledgeable on international fat and oil pricing.

6. Soycote Sales is a soybean and cottonseed oil broker who is highly skilled in getting buyers and sellers together. Their primary capability is originating oil in the U.S. for domestic users as well as for export. At this time, we doubt that their expertise extends into the area of international fat and oil analysis and pricing.

7. We recommend that N.D.D.B. examine the value of taking on a part time consultant located in a listening post such as London, Rotterdam or Chicago to gather information, evaluate, eliminate the chaff, and telex or otherwise relay most important price-making data. Possibly Soycote would accept this assignment.

8. A flow of U.S.D.A. publications and reports is desirable as well as twice-weekly weather reports from the U.S. and Brazil during the growing season.
9. Purchase cost of the above services is estimated at 20 to 25,000 U.S. dollars per year.

APPENDIX B

QUESTIONS CONCERNING THE PRESENT AND FUTURE VIABILITY OF OILSEED PROCESSING IN INDIA AND WHAT IS NECESSARY TO MAKE IT A PAYING PROPOSITION

Conclusions

The key to efficient processing of groundnuts in India is to upgrade plants both as to quality and size. But before the capital becomes available to do this, some method of eliminating or shifting risk is needed. Many of the ills of the industry would be cured by a steadily increasing groundnut crop; a crop big enough to permit 300 plus days of operation to the processor is needed; first to fill product demand especially edible oil, and secondly, to greatly reduce processing cost. The resultant savings would presumably be passed on to the consumer by a significant reduction in the price of oil.

Market risks have fragmented the industry

At the present time, the risks inherent in the processing business plus the added risk of adverse governmental directives have evidently deterred companies normally associated with processing from entering the business in India. International grain companies like Unilever, Cargill and Continental are not part of the Indian scene even though they are extremely active in other areas of the World. The lack of future markets to hedge off risks partly explains the absence of these market leaders. In fact, part of what is called "speculation" or "manipulation" is actually

taking price protection against the many risks inherent in the business. The grower carries the risk of weather, disease, drought, etc., and also appears to be carrying a host of other market risks in the low price that he is paid for his groundnuts.

Even Indian concerns that one would expect to be processing as an outgrowth of integration are non-processors. The 1979-80 annual report of the Gujarat State Cooperative Marketing Federation states that "During the year, the Federation has undertaken various processing units of cooperatives on lease or job-work basis (presumably toll crushing) and we have processed various agricultural products such as groundnuts.19,099 M.T., etc."

Following are some of the reasons for this unusual situation: There is considerable evidence that processors depend more on speculative profits than crush margins in the operation of their plants. If true, this tends to increase processing cost, product quality suffers, research and development budgets are cut, and since speculative profits usually accrue from paying less than economic value for raw materials, returns to growers is sure to suffer. It is unnecessary to invest capital in processing plants plus enormous requirements for working capital to carry on this type of business. All that is needed is good storage facilities located near the oilseed grower and preferably within easy trucking distance of a processing plant where the oilseed will ultimately be sold after the price appreciation goal has been realized.

The industry is fragmented into many small pieces. It appears too weak to stand up against government interference such as limiting needed meal exports. Industry self-interest leadership is lacking; otherwise crop production would not be in shambles. The industry is intimately familiar with the oncoming edible oil shortage, but appears to be doing little to alleviate it. Processors seem unwilling to modernize plants in part due to fear that if import policy was liberalized, their high cost plants would be forced to close. It is a pretty good assumption that the bankers are very reluctant to loan funds to a high cost, sick industry.

Operating cost of the plants

Probably the most unfavorable factor affecting processing profitability in India is the substantial amount of surplus capacity which constantly hangs over the market and puts a low ceiling on crush margin basis cost of the most efficient plant plus the ever-present desire to capitalize speculative profits. The following processing profile of Gujarat State which normally accounts for about 25 percent of India's groundnut production indicates that the average crop only provides 138 days of running time to the crushing industry; even less if crop losses and the following years' seed requirements are considered.

Processing Profile: Gujarat State as of January 1, 1974

Total crushing mills	795	
Mills with extraction units	22	
Mills with Vanaspati units	2	
Crush capacity (per month)	294,072	m. tons
Crush capacity (per year)	3,529,000	m. tons
Oil production capacity (per month)	81,390	m. tons
Total solvent extraction plants	34	
Total solvent extraction capacity (Cake per month)	100,525	m. tons
Total Vanaspati plants	10	
Total Vanaspati capacity (per month)	8,925	m. tons
Average area planted to groundnuts	1.95	m. ha.
Average groundnut production (24.9% of India)	1.35	m. mt
Days run time provided by crop	138	days

Of 590 mills in Saurashtra region, only 71 or 12.8 percent had rated capacity of 750 M.T. or above per month. 46 percent were below 250 tons per month. Note: not per day.

The combination of small size, plus crush averaging only 38 percent of a year results in fantastically high cost per ton of throughput, a probable processing margin loss, and whatever profit accrues is probably due to speculation and/or unorthodox accounting.

Quantifying or even estimating the cost of operating these small plants is difficult since a great deal depends on stage of capitalization, depreciation status, degree of integration with other related businesses, etc. A ballpark figure could be as high as 150 dollars per m. ton. There is little comparison, but for the record it costSabout 18 dollars per m. ton to operate a 1,000 ton per day soybean plant in the U.S. or Europe.

Approximate processor type conversion margin at Bombay - 1979-80

Following is a rough calculation of total groundnut meal and oil values less cost of the groundnuts - all F.O.B. Bombay per m. ton. All data are in Rupees per m. ton.

	Total Product Value	Less Groundnut Cost	Processing Margin
October 1979	4,826	4,390	436
November 1979	4,540	4,210	330
December 1979	4,557	4,420	137
January 1980	4,375	4,150	225
February 1980	4,645	4,320	325
March 1980	4,700	4,390	310
April 1980	4.710	4,400	310
May 1980	4,700	4,440	260
June 1980	4,720	4,500	220
July 1980	5,230	4,960	270
August 1980	5,210	4,880	330
September 1980	4,820	4,610	210

Product Yields used in above calculations

Meal	52.5%
Oil	45.5%
Shrink	2.0%

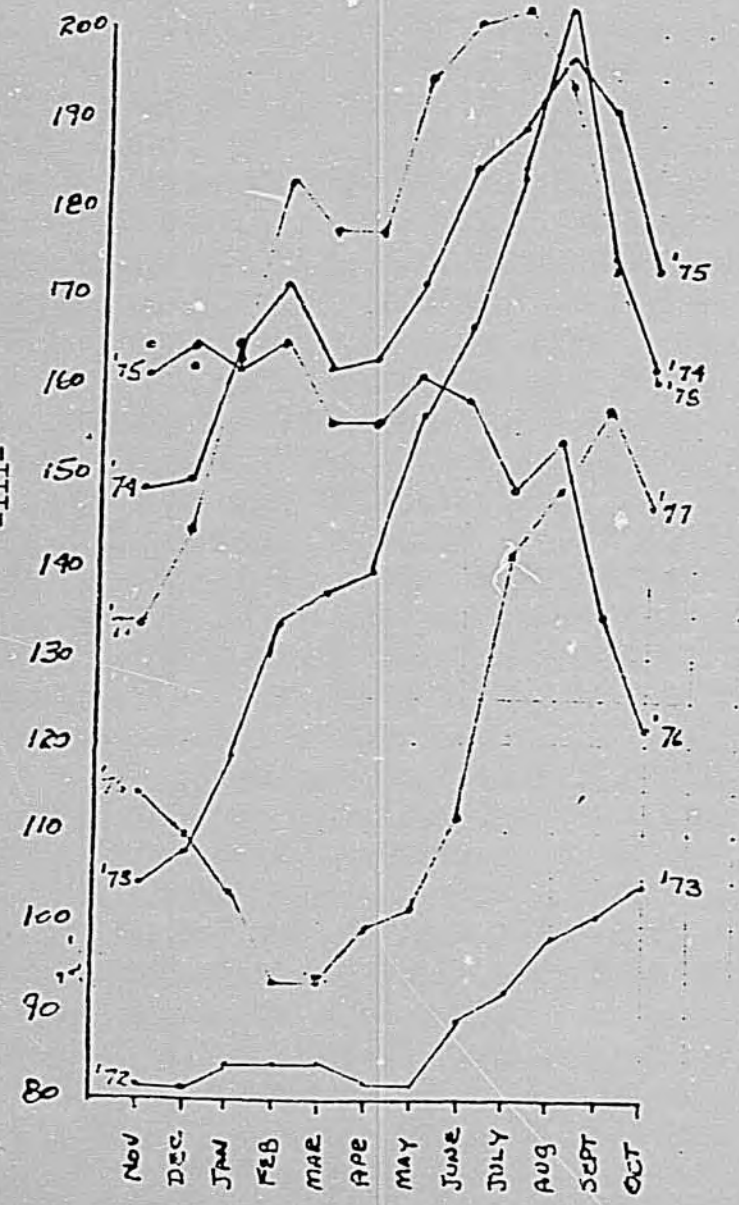
Average processing margin for the entire 12 months is Rs.280/- per metric ton. This converts to 35 U.S. dollars which would be a satisfactory margin (and resulting profit) in operating a 200-400 ton plant 330 days a year. The things that will benefit the most Indian people at this time are to get the groundnut crop up; get the processing cost down, and let the savings flow back to the people. The savings in processing cost alone could range from 3 billion to as much as 5 billion rupees per year.

Concluding recommendation

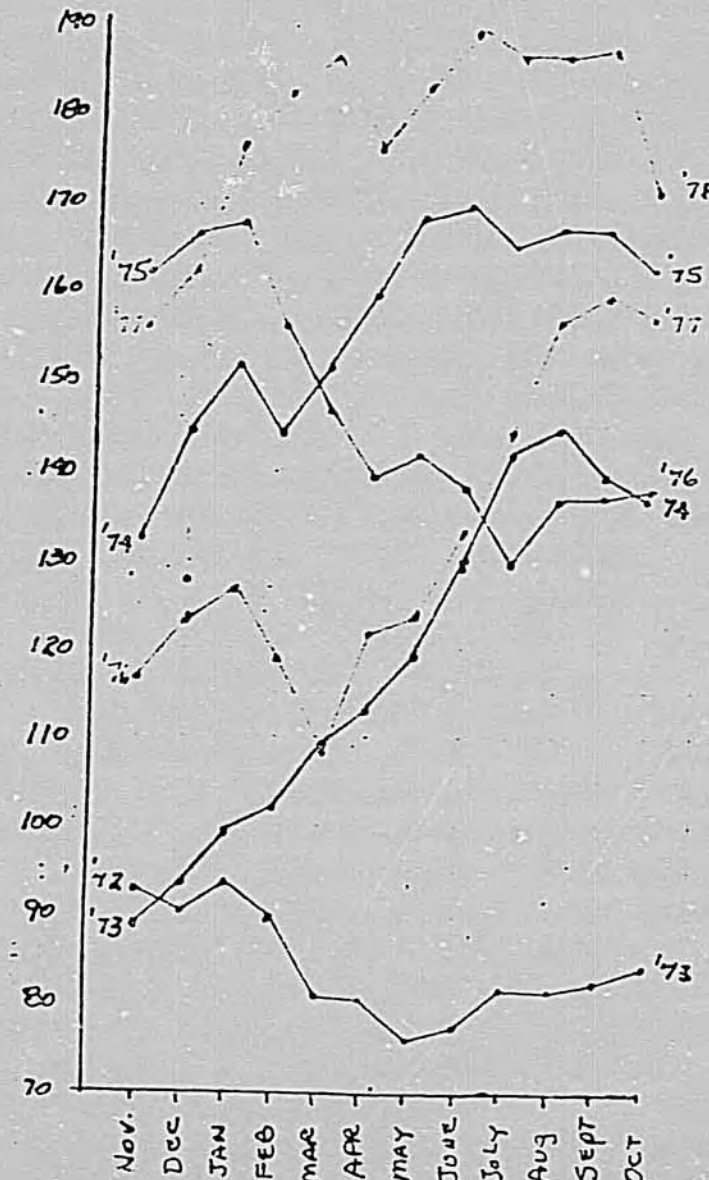
It is clear that before processing cost can be reduced, crop size must increase, because it is the increased units of throughput which will be the major processing cost saver. Also increased crop size will give the Indian people more and less expensive oil. These two major factors should provide the guidelines, and be one of the critical determinants of program priorities.

INDEX NUMBERS OF WHOLESALE PRICES IN INDIA
BASE: 1970-71 = 100

GROUNDNUTS



COTTONSEED



INDEX PRICE (VALUE) O
NOT BE USED TO DET
ACTUAL RUPEE RETUR

GROUNDNUT HARVEST –
IS OCT – DEC & MI
IS APR. & MAY.

COTTONSEED HARVEST IS
JAN. WITH MINOR
PICKING IN FEB & EA

APPENDIX C

MARKETING CONCEPTS THAT HELP ELIMINATE MONOPOLY BUYING POWER

The Chicago Board of Trade is called the last bastion of the free enterprise system by its fiends and various degrees of uncomplementary names by its enemies. But even the critics admit that the Board provides three important services in the marketing of grains, soybeans and soybean products, to mention only a few of the commodities traded, that has nurtured a marketing structure of unmatched effeciency. These major services are:

1. It provides a forum wherein buyers and sellers can meet to go about their business of buying and selling. Trading is done by open outcry, prices are recorded for each trade and instantly flashed to key local and international market places.
2. Rules governing trade, conduct and ethics are formulated, voted on and finally enforced by the members themselves. It is seldom that a dispute is ever carried up to civil court; practically all are settled by internal arbitration panels.
3. The Board market place acts as a fulcrum that gathers price-making data and information from critical World production and consumption centers. This information is widely distributed over private and public telex systems. The subsequent trading quickly discounts the news into the price

structure. Price, therefore, constantly reflects all known supply-demand factors at any given moment during the trading session. Very few secrets survive for long in this environment.

All of these factors: open outcry, rapid price transmission, fair and impartial trade rules rigidly enforced, information gathering and transmittal, and the absence of underhandedness result in price changes measured in eigths of a cent per bushel ($2.75 per m. ton). Thus seasonal price swings more often than not are limited to the cost of carrying the commodity. Since processors or other handlers of commodities can use the market to shift price risk, processing and handling margins are cut to bare minimum so that only the most efficient survive the rigors of the market place.

The NDDB is in the process of developing a program to restructure the marketing and processing of oilseeds. One of its goals is to insure that the grower will reap more of the rewards of his labor. We recommend that a further study be made of the Chicago Board of Trade to determine if, in fact, all or part of the above Board concepts might very well be incorporated in the program which could assist in realizing goals at modest cost.

This should not be construed as a study to determine the feasibility of an Indian oil and/or oilseed futures market. That certainly must be postponed to a time when supply-demand are in

of the above concepts will prove beneficial to both grower and consumer.

Following are some ideas and suggestions that appear to merit further analysis and refinement:

1. Open outcry and above all, a spirit of fairness should be necessary prerequisite for trading at the local level. Some method of recording and posting prices should be encouraged. Prices are transmitted to a Central Intelligence Center where they become part of a daily statistical report released to the press, and also relayed back to the local markets. There everyone can see the composite report of prices paid over a wide marketing area. At this point the grower becomes knowledgeable, and better able to resist the tactics of those who wish to manipulate a situation to their benefit.
2. A Cooperative Nerve Center will be organized to monitor daily prices reported by the Central Intelligence Center. If adverse pricing is noted in certain local markets, price guidance will be offered which should correct the situation. If it does not do so quickly, above market bidding directed from the Cooperative Nerve Center may be necessary for short periods until the local prices relate favorably to those reported from most other areas.

3. Establishment of an arbitration panel or some type of quasi-legal entity where grower complaints can be heard and adjudicated without fear of subsequent discrimination. Decisions are posted for public inspection.
4. Either the Cooperative Nerve Center or the Central Intelligence Center should be charged with the responsibility of broadcasting twice daily weather bulletins as well as other news of price making significance.

There are probably as many variations of the above as there are markets. The key to most of them is fast transmittal of information which is made available to all market participants. Those that are dishonest are soon discovered and called to account for their actions. The simplicity of this plan is one of the main reasons that it will succeed. An outstanding advantage is its modest cost/probable results ratio.

This program should be thoroughly sold to local leaders who must be made to understand the profit possibilities to themselves and others if the plan is adopted. Their leadership is necessary to overcome expected resistance to change. But farmers are unusually shrewd and realistic in their evaluation of new ideas, and in the time will approve. They naturally want to make sure first that experiments are not being undertaken at their expense.